Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of the Commission's Rules Regarding	)	
the Pricing of Unbundled Network Elements	)	WC Docket No. 03-173
and the Resale of Service by Incumbent Local	)	
Exchange Carriers	)	

COMMENTS OF AT&T CORP.

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AT&T Opposition	AT&T Opposition, WC Docket No. 03-157 (filed Aug. 18, 2003)
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Baumol Aff.	Comments of AT&T Corp., CC Docket No. 96-98, Appendix C (Affidavit of Baumol, Willig, and Ordover) (filed May 16, 1996)
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COMMENTS OF AT&T CORP.

AT&T Corp. ("AT&T") respectfully submits these comments in response to the Notice of Proposed Rulemaking ("*Notice*") released by the Commission on September 15, 2003, and published in the Federal Register at 68 Fed. Reg. 59,757 (Oct. 17, 2003).

INTRODUCTION AND SUMMARY

In endorsing the TELRIC pricing standard for unbundled network elements ("UNEs") in its 1996 *Local Competition Order*, the Commission considered and rejected all of the rival cost standards proposed by the incumbent monopolists: embedded costs, reproduction costs, short run costs and hybrid approaches, as well as the incumbents' non-cost-based "parity pricing" proposals. The Commission did so because it recognized that basing prices on the long run incremental costs ("LRIC") of a forward-looking network is the approach most likely to replicate the performance of effective competition and send the correct economic signals to market participants. Although (or, perhaps, because) real world experience has confirmed the correctness of the Commission's predictive judgment, the Bell Operating Companies now urge the Commission to abandon the LRIC foundations of its TELRIC rules.

For seven years, the Bell Operating Companies have fought TELRIC tooth and nail. The Bells' challenges to the TELRIC rules have been repeatedly and definitively rejected by the

federal courts. And although the Bells did "succeed" in significantly delaying the onset of local competition through their campaigns of obfuscation and obstruction of state commission efforts to apply the TELRIC rules, those Bell efforts have largely been unmasked. After hundreds of UNE rate cases, state commissions have increasingly learned to cut through the rhetoric and cost study gamesmanship and get TELRIC-based pricing right. As a result, tens of millions of consumers and businesses have gained the option of obtaining local phone service from UNE-based competitors. The Commission and its state counterparts have relied almost solely upon this UNE-based entry to find that local competition has become vigorous enough to warrant approval of the Bells' section 271 applications for authority to provide long distance services.

Now, on the cusp of victory for competition and consumers, the Commission's commitment to TELRIC must not waver. The *Notice*, however, equivocates. While professing to adhere to the standard of "forward-looking cost," the *Notice* proposes to "clarify" the standard by making it more "firmly rooted in the real-world attributes of the existing network." *Notice* ¶¶ 4-5, 37. How this would be accomplished is unclear: "actual" and "real-world" costs are chameleon terms, and, in the Bells' usage, almost invariably herald an assault on forward-looking cost-based pricing. At some points, the *Notice* seems to be proposing a shorter-run focus, without acknowledging that a true short-run approach could only produce much lower UNE rates (because the costs of most network assets are largely sunk in the short run). *Id.* ¶¶ 53, 55. Elsewhere, the Commission suggests that "actual" or "real-world" cost modeling entails replicating the equipment, technologies, and cable routes of the Bells' existing networks with atomistic fidelity, *id.*, ¶¶ 52-53, 63-66, which is the very "reproduction cost" approach that the *Notice* recognizes has been universally "discredited." Still elsewhere, the *Notice* seeks comment on a wholly arbitrary short run/long run hybrid that would adopt the long run assumption of replacement of the entire network, but only at the much higher unit costs of planned short-run

upgrades to the existing network—a combination of costs that would never represent the forward-looking costs of any real world efficient firm, in the short run or the long run. *Id*. ¶ 54.

None of these approaches would serve the Commission's stated goals or the public interest. The latest Bell criticisms of TELRIC reflected in the *Notice* are as baseless as the earlier criticisms that the Commission and others have repeatedly rejected. Indeed, most of the "new" criticisms and proposed "solutions" are simply relabeled versions of the *same* arguments and approaches that the Commission and the Supreme Court have already properly rejected.

The public interest stakes are too high for equivocation. The Commission must reaffirm its commitment to true long-run, forward-looking cost-based pricing and reject each and every one of the anticompetitive "clarifications" proposed by the Bells. Any other course would turn what is possibly a Commission retreat from policies that advance much-needed telecommunications competition into a headlong rout of consumer interests.

The *Triennial Review Order*'s new limits on unbundling obligations do require clarification of the TELRIC standard to ensure that CLECs are not forced to subsidize ILECs for network capabilities that the *Triennial Review Order* denies to UNE purchasers. And, as detailed below, the Commission should, in several respects, clarify its rules to ensure that specific cost model inputs and assumptions are properly implemented. But there is neither need nor justification for fundamental change to the existing TELRIC rules.

The RBOCs' Conceptual Criticisms of TELRIC Are Baseless

The conceptual criticisms of TELRIC offered for comment in the *Notice* are a litany of Bell talking points. The Bells argue that: (1) TELRIC, rather than modeling "actual" or "real world" networks, assumes that networks are completely and "instantaneously" rebuilt whenever technology advances; (2) TELRIC models provide an overly simple and abstract representation of actual customer locations, topography, and network routes; (3) TELRIC-based pricing deters

investment by the ILECs and potential entrants; and (4) TELRIC models are too complex, opaque, costly and impractical for state commissions to apply in rate cases. *See Id.* ¶¶ 49-61. The economic and practical realities are quite different.

1. TELRIC properly revalues older assets in light of current technology. The notion that TELRIC assumes the "instantaneous" and "ubiquitous" deployment of new technology throughout local networks is a Bell caricature. The response to new and improved technology actually assumed in the TELRIC model is not the physical replacement of older assets, but their revaluation. This assumption is consistent with the behavior of actual markets: in competitive or contestable input markets, the economic value of existing technology is always "capped" by the forward-looking economic value of the most efficient technology currently available on the market. Moreover, the revaluation effected by TELRIC-based ratemaking is hardly "instantaneous." In practice, the Commission's rules trigger the modeling of new technology only after it has passed from laboratory and prototype into widespread commercial deployment. And, as the Supreme Court noted in *Verizon*, the three- or four-year intervals expected between UNE cases inject an additional time lag into the ratesetting process. *See Verizon Communications, Inc. v. F.C.C.*, 535 U.S. 467, 505 (2002).

2. The Bells' claim that the TELRIC standard is defective because TELRIC cost models abstract from actual network attributes such as "routing and topography" is equally without merit. Nothing in the TELRIC methodology precludes the use of real world topography and customer locations. The TELRIC rules concern the economic definition of costs, not the precision and detail of the data used to model them. But there is a fundamental distinction between encouraging greater accuracy in modeling exogenous cost constraints (*e.g.*, customer locations and terrain) and resurrecting the "discredited" reproduction cost standard, which would mindlessly replicate inefficiencies in existing ILEC plant design. Moreover, the Bells have

exaggerated the extent to which TELRIC models currently abstract from geographic realism. As litigants and regulators have gained experience with the TELRIC methodology in actual rate cases, TELRIC-based cost studies have incorporated geographic data of increasing complexity and detail.

That absolute perfection has not been attained is no indictment of TELRIC. No cost model, and no set of ILEC books and records, has ever mirrored, or could mirror, the "real world" in atomistic detail. But it is important to recognize that the goal of cost modeling in rate-making proceedings is to produce reasonably accurate estimates of what it would *cost* to build, maintain and operate an efficient, forward-looking network, not to produce maps or construction plans that reflect studied consideration of every detail of real world topography. Simplifying assumptions are therefore entirely appropriate where, as with cable lengths and all of the Bells' other favorite examples, greater input detail would complicate and greatly increase the cost of rate proceedings for no material benefit in more accurate estimates of the relevant forward-looking costs.

3. The underinvestment in local networks supposedly resulting from TELRIC pricing is another Bell invention. *Cf. Notice* ¶¶ 3, 39, 52, 54, 57, 83. The capital stock of the local telecommunications industry has skyrocketed since 1996, and remains at record levels. As the Supreme Court noted in *Verizon*, a "regulatory scheme that can boast such substantial competitive capital spending over a 4-year period [$55 billion from 1996-2000] is not easily described as an unreasonable way to promote competitive investment." *Verizon*, 535 U.S. at 517. If anything, Bell investment is accelerating. Verizon has announced a fiber-optic investment initiative that rivals in scale "the construction of the Roman aqueducts." "Funding is not an issue," boasts Verizon's CEO.

The proper goal of UNE pricing is not to subsidize investment at all costs, but to encourage *efficient* investment. The pricing standard that gives proper signals for these investment decisions is TELRIC, and it is common sense that the goad of competition will spur far more investment than does the lethargy of monopoly. Real world econometric evidence confirms this: lower UNE prices correlate significantly with *more*, not less, ILEC investment.

4. The supposedly excessive "complexity" of the TELRIC standard, and the variability of the outcomes it supposedly produces, are also Bell myths. The cost and complexity of UNE rate litigation stems not from the TELRIC standard itself, but from the engineering complexity of local telecommunications networks, the enormous stakes of the litigation, and the massive resistance of the Bells to meaningful discovery, particularly in the early years. As state commissions have gained experience with TELRIC, the range of disputes has narrowed, and TELRIC rate cases have become "surprisingly smooth-running affairs." *Verizon*, 535 U.S. at 522. The Commission should therefore avoid tampering with the TELRIC standard without clear and compelling proof that the existing rules produce erroneous results.

Certainly, no such inference can be drawn from actual experience in hundreds of UNE rate proceedings. The Bells' point to rate differences among states, but ignore the significant state-to-state differences in population density and other cost-causing factors. Variations in UNE prices and input determinations from state to state that are not explained by cost differences are an artifact not of TELRIC, but of the hybrid state-federal regulatory scheme enacted by Congress. For a system administered by 51 separate tribunals, the outcomes have been remarkably consistent. And the results have been converging over time as state commissions and litigants have moved up the learning curve. If the Commission's goal is to promote uniformity in outcomes, jettisoning this hard-won experience by changing the cost standard would be a major step in the wrong direction.

The Bells' Proposals Would Frustrate The Commission's Goals

The "solutions" that the Bells propose are as counterfeit as the "problems" that they supposedly remedy. Far from embracing forward-looking cost principles, the proposed changes would sabotage them.

1. A cost standard "that incorporates upgrades planned by the incumbent LEC over some objective time horizon (*e.g.*, three or five years)" is neither "representative of the real world" nor consistent with any species of economic costing recognized by economists. This methodology is clearly *not* intended as a measure of short run incremental costs, for the sunk character of most existing network investment implies that the short run incremental costs of UNEs are likely to be far, far below TELRIC. Rather, what the Bells propose is a misbegotten hybrid of short run incremental costs and reproduction costs.

That the standard relies at all on reproduction costs—the current cost of replacing whatever legacy assets happen to be embedded in the network today—is bad enough. Both the Commission and the Supreme Court have dismissed reproduction cost ratemaking as illegitimate. The proposed standard compounds the problem, however, with its schizophrenic treatment of sunk investment. Piecemeal expansion of a network over a short-run period such as 3-5 years is economically rational only because most existing investment is sunk in the short-run, and thus has little or no economic cost. In valuing the sunk investment, however, the Bells' proposal would assume that *all* existing investment is variable in the short run (and thus has an opportunity cost fully equal to that of the capacity added during the planning period). No efficient firm "in the real world" would ever base output, pricing or investment decisions on this combination of costs—in either the long run *or the short run*.

2. The proposed "presumption" that the ILECs' book costs and current practices are equivalent to efficient forward-looking costs is another non-starter. The notion that incentive

price regulation has purged all efficiencies from existing networks is absurd. Even perfect incentive regulation provides weaker incentives to pursue innovation and minimize costs than does competition. Moreover, actual price cap regulation is riddled with loopholes and exceptions, and preserves both the incentive and ability for Bells to misuse their market power and recover excessive costs from ratepayers.

But even if real world incentive regulation had broken entirely the linkage between costs and prices, it would be irrational to presume that the Bells' practices in maintaining and upgrading their existing networks are an acceptable proxy for the forward-looking practices of an efficient new carrier. This is so for two reasons. First, the Bells' practices with regard to technology, equipment, design, operation and maintenance are necessarily heavily influenced by their prior sunk investments. Second, to whatever extent the Bells' current practices are in pursuit of optimally efficient network design and operation, it is broadband networks that have capabilities far beyond those available to UNE purchasers that the Bells are seeking to optimize.

The *Rules* Must Reflect The *Triennial Review Order* Unbundling Restrictions

If the Commission adheres to its decision in the *Triennial Review Order* to exclude certain broadband capabilities from ILEC unbundling obligations, it must make clear that rates for affected UNEs must reflect those limitations. Charging CLECs for the cost of the broadband capacity they have no right to lease would require them to subsidize the ILECs' broadband services, and violate the just, reasonable and nondiscriminatory rate requirements of the 1996 Act as well as fundamental principles of cost causation and efficient pricing. Rates set in this manner would exceed not only the incremental costs of each UNE plus a reasonable allocation of common costs, but even the stand-alone cost of an efficiently designed network with the capabilities that CLECs can access. The Commission must state, in the clearest terms, that costs that are common as between capabilities that are available to CLECs and those that are not,

"shall be allocated among elements and services in a reasonable manner, consistent with the pro-competitive goals of the 1996 Act." *Local Competition Order* ¶ 696 ("One reasonable allocation method would be allocate common costs using a fixed allocator, such as a percentage markup over the directly attributable forward-looking costs.").

Specific Inputs and Assumptions

The Commission should strengthen the TELRIC rules by clarifying the appropriate implementation of those rules with respect to certain inputs and other cost model assumptions:

Network routing and construction: Cost models should—and modern TELRIC cost models do—mirror the flexibility of actual telephone carriers to follow cost-minimizing practices in routing, network design and provisioning. Because the states are in the best position to resolve (in on-the-record adversarial proceedings) the fact-bound issues of which algorithms, simplifying assumptions and data produce the best forward-looking cost estimates in particular circumstances, the Commission should refrain from prejudging such issues at this time.

Line counts: Even if some loops are no longer available for leasing by CLECs, it is critical that all loops be included in determining the per-unit costs of providing loops. Otherwise, purchasers of loops available for leasing will pay an excessive share of structure and other costs that are shared in common with loops that are not available for leasing, an outcome that would be unlawfully discriminatory. Moreover, the Commission should make clear that ILECs have an obligation to produce line count data for all loops at the outset of all rate cases.

Fill factors: Cost models should include the cost of only the spare capacity needed to meet existing demand efficiently. The spare capacity needed for customer churn and defective cable pairs is minimal, and often will be satisfied by the "breakage" that results from the limited range of cable sizes. Current ratepayers should never bear the costs of spare capacity acquired in anticipation of future growth in demand. No economically rational firm would acquire such

excess capacity unless the present value of the anticipated revenue from future growth in demand exceeds the present value of the carrying costs of the spare capacity in the interim. Allowing ILECs to charge current ratepayers for the carrying cost of growth capacity would force current ratepayers to subsidize future ratepayers, thereby violating core cost causation and nondiscrimination requirements.

The Commission should reject any presumption that an incumbent's "actual" fill factors are forward-looking. Existing capacity is almost always bloated by inefficiency, and thus existing fill factors cannot be used as a proxy for efficient forward-looking fill factors. Moreover, "actual" fill data do not distinguish between spare capacity needed for current demand, and capacity acquired to meet future growth.

Structure sharing: The costs of support structure—poles, trenches and conduit—must be determined by assuming an efficient sharing of structure with other telecommunications companies, public utility companies, and cable operators. These are common costs, and an efficient telephone carrier would minimize them by sharing them with others. That telephone companies have given less than optimal attention to structure sharing in the past is irrelevant. Municipalities increasingly require it, and failing to pursue all reasonable opportunities to minimize common structure costs through structure sharing violates the efficiency assumption of TELRIC.

It is no answer to say that increased sharing of existing structure is not cost effective because most existing structure has been built. That statement is correct only in the short run. If structure sharing is to be evaluated from a short-run costing perspective, so must the unshared cost of the structure itself. Because most investment in poles, trenches and ducts is sunk once made, the short-run incremental cost of support structure—whether shared or not—is close to zero. The Commission can adopt a short-run standard or a long-run standard. It cannot,

however, sanction a heads-I-win, tails-you-lose standard that allows ILECs to use short-run costing assumptions where they produce higher costs, while adhering to long-run cost assumptions where *they* produce higher costs.

Switching Costs: The weighted average discount for switching equipment investment should be determined by a life-cycle analysis of the cost-minimizing mix of new and add-on switching investment over the life of the equipment. The incumbents' proposal to base the unit costs of *all* switching equipment on the unit costs of the piecemeal additions to switching capacity that the incumbents plan to buy in the short run is another example of cost maximization through inconsistent time perspectives. Incurring the higher unit costs of piecemeal additions to switching capacity is economically rational only because much of the investment in baseload switching capacity is sunk, and thus has no economic cost, in the short run. Consistency forbids adoption of a cost model that recognizes the former, but not the latter.

The appropriate switching rate structure is a flat, per-port fee, as both the state commissions and the Wireline Competition Bureau have recently held. The vast majority of switching costs are completely unrelated to usage. And the small fraction of costs that are usage sensitive vary only with usage that occurs during peak hours, not with off-peak usage. Because carriers do not charge time-of-day rates for switching (and probably lack the data and billing methods to do so), the next best alternative is a purely flat-rated switching rate structure.

Cost of capital: The standard financial models used in UNE rate proceedings over the past seven years provide appropriate measures of the cost of capital. Reasonable estimates of the cost of equity are available from both the DCF and CAPM models. The recent decision of the Wireline Competition Bureau to reject the results of a multi-stage DCF model was illogical, and the Commission should decline to follow it. For the CAPM, the Commission should make clear that the relevant market risk premium should reflect forward-looking projections, not historical

risk premium data from decades ago. The Commission should also avoid prejudging the appropriate value of *betas* used in the CAPM by arbitrarily imputing the average market beta to local telephone carriers. For cost of debt, the Commission should make clear that the relevant benchmarks are the yields to maturity of debt issues with terms no longer than the lives of the underlying assets. And for capital structure, the Commission should affirm that the relevant benchmark is the *target* capital structure that a company of comparable risk would pursue over the long-run—not the underleveraged capital structures that can temporarily occur during periods of falling interest rates and rising stock prices.

Because the returns currently demanded by investors—and embodied in the stock prices and betas used in standard DCF and CAPM models—reflect all of the risk factors, current and projected, that a company and its investors anticipate, adoption of a separate and additional risk premium for competitive or regulatory risk is unwarranted. Moreover, whatever facilities-based competitive risk ILECs may have faced in the leasing of UNEs has been eliminated by the Commission's recent decision to limit unbundling to network elements where facilities-based competition appears completely infeasible. In any event, if the Bells are right that ubiquitous facilities-based competition from a host of cable, wireless and VOIP providers is just around the corner, any increase in systematic risk that would be caused by such competition is already reflected in DCF and CAPM estimates. Further, risk from increased competition in a particular industry segment is largely, if not entirely, diversifiable.

There is no justification for adding a risk premium to cost of capital estimates on the theory that consistency with TELRIC requires the legal fiction that the ILECs face multiple facilities-based competitors. TELRIC is designed to mimic the performance of a contestable market, in which prices are constrained to cost by the threat of potential competition, not the performance of a market with multiple facilities-based competitors. In the latter market, prices

for UNEs may fall to short run marginal cost—which is below TELRIC. Moreover, although an instantaneous shift from the real world of limited facilities-based competition to a hypothetical world of ubiquitous competition from facility owners might imply a one-time substantial reduction in market value, it is far from clear that such a shift would materially increase the non-diversifiable, *systemic* risk that influences cost of capital in an efficient market. In all events, DCF and CAPM estimates used by state commissions and estimates of cost of capital in the real world already provide a hefty (and entirely overstated) risk premium for UNE costs, because the ILEC holding company stock prices and other data on which those estimates are based reflect the impact of a variety of businesses that are much riskier than the provision of UNEs.

Depreciation: Depreciation is another area where the Bells' party line bears no relation to economic reality. The Bells' perennial campaign to replace the Commission-prescribed asset lives with GAAP financial lives remains unsupported by *any* objective evidence that regulatory lives overstate the service lives that the Bells actually experience, or are likely to experience in the future. To the contrary, continued growth in the Bells' depreciation reserves indicates that the Commission-prescribed lives are, if anything, too short. And the Commission's longstanding refusal to approve GAAP financial lives is still correct: GAAP lives are deliberately set to be conservatively short. This conservative bias is appropriate when the goal is to protect investors, but not where, as here, the regulatory goal is to protect consumers and ratepayers.

The Commission should also decline to adopt accelerated or front-end loaded recovery of depreciation. Depreciation recovery is already accelerated by the relatively short asset lives adopted by the Commission, and by the replacement of traditional straight-line depreciation with equal life group depreciation in most states. Accelerating depreciation still further by explicit adoption of an accelerated depreciation method could lead to significant overrecovery, and is

flatly inconsistent with the Commission's *Triennial Review Order* policy of refusing to guarantee the indefinite availability of UNEs.

Expense factors. The Commission should rule that the incumbents' current expenses may not be used to compute UNE rates. Current expense levels are higher than forward-looking expenses, for an efficient, forward-looking network consists of improved systems that do not require as much maintenance or labor as the incumbents' systems, thereby saving on expenses. Moreover, the ILECs' book expenses include expenses associated with capabilities that are unavailable to requesting carriers.

Rate Deaveraging: The Commission must continue to require states to implement geographic deaveraging of UNE rates. Competitive entry into local telephone markets is critically dependent on ensuring that competitive costs—*i.e.*, the UNE rates charged by incumbents—mimic the incumbents' forward-looking costs. Because these costs do vary so significantly by population density, averaged UNE rates could only discourage efficient facility investment, encourage inefficient arbitrage, and deny many consumers any opportunity for competitive choice. It is no answer that geographic deaveraging may undermine state policies of maintaining implicit rate subsidies within the retail rate structure. Retail rate cross-subsidies are anticompetitive and thus contrary to policies of the Act. That geographic deaveraging of UNE prices may accelerate the dismantling of these subsidies is another argument *for* deaveraging.

Non-Recurring Charges: Because inflated NRCs are serious barriers to entry, their proper determination is critical. The Commission should continue to require that NRCs reflect the forward-looking costs of efficient networks, including efficient Operations Support Systems ("OSS"), with minimal charges for manual processing activities. And the same network assumptions should be used for both recurring and nonrecurring costs. Modifying NRC cost standards to replicate embedded network characteristics more closely would make NRC

determination more complex and subjective, not less so, and would reduce incentives for ILECs to operate efficiently.

The costs of developing the incumbents' OSS should not be recovered from CLECs at all. OSS development costs are competition-onset costs, and should be recovered from all consumers in a competitively neutral manner. And ongoing OSS costs should be recovered through expense factors that spread those costs over all uses of the ILECs' OSS, not separate charges that recover shared OSS operations and maintenance costs from CLECs only.

NRCs should also be limited to costs that exclusively benefit the competitive LEC ordering the UNE. If a facility can be reused without change, the cost should be recovered through recurring charges, because the facility benefits subsequent users. Allowing ILECs to recover such costs through NRCs would enable them to obtain a double recovery, and would force the first user of the facility to subsidize the costs of subsequent users. Disconnection charges should be recovered (if at all) only when the service is actually disconnected. Assessment of such charges upon disconnection adheres to the principle of cost causation, because an ILEC does not incur the costs of disconnection until the facility is actually disconnected. Indeed, the ILEC often incurs *no* disconnection costs, because many facilities are never physically disconnected upon termination of service.

ILECs should not be permitted to assess loop conditioning NRCs. Because loop conditioning is unnecessary in a forward-looking network, the recovery of loop conditioning charges is a flagrant violation of forward-looking cost principles. The need for loop "conditioning" arises only because many embedded networks still are littered with load coils, excessive bridge taps, and repeaters. These items have been contrary to network engineering guidelines for more than 20 or 30 years. In any event, loop conditioning is, by definition, a

recurring activity: a loop, once reconditioned, remains available to all users of the network long after the CLEC's request for conditioning.

Implementation Issues

To mitigate the information asymmetry suffered by CLECs in UNE pricing litigation, and to reduce the ability of ILECs to stonewall against CLEC discovery requests, the Commission should prescribe a list of data that incumbents must produce as a matter of course to state commissions and other parties at the outset of UNE rate cases.

The Commission should not require automatic adjustments to UNE rates over time in lieu of UNE pricing cases at appropriate intervals. Experience teaches that the productivity offsets built into automatic adjustment mechanisms almost always understate actual productivity gains. Moreover, determining appropriate adjustments would be enormously complex and burdensome.

The Commission should also refrain from imposing a national timetable for the implementation of any TELRIC rule changes by state commissions. A national mandate for each of the 50 state commissions to initiate a new UNE pricing proceeding would create a massive drain on the resources of the CLEC sector, and thus erect a major barrier to entry. No exigent circumstances justify such a costly mandate, particularly since the existing TELRIC rules have been upheld by the Supreme Court as lawful, pro-competitive and compensatory.

Finally, the Commission should decline to adopt a true-up mechanism. A mandated true-up mechanism would create lingering uncertainty, possibly for many years, about the actual costs of competitive entry. For potential entrants, this lingering uncertainty would be a major barrier to entry and a major deterrent to investment.

ARGUMENT

I. MORE THAN SEVEN YEARS OF EXPERIENCE CONFIRM THE FUNDAMENTAL SOUNDNESS OF THE COMMISSION'S TELRIC APPROACH TO UNE PRICING.

In 1996, on the basis of a massive record, the Commission took the manifestly pro-competitive step of establishing a LRIC-based framework for network element pricing. *See generally Local Competition Order* ¶¶ 672-740. In doing so, the Commission relied upon consensus economic theory as applied in numerous contexts in which regulated network access is necessary to promote competition. *Id*. The Commission's goal then, as now, was rates that are both compensatory and efficient—*i.e.*, rates that provide correct economic signals for competitive entry and investment. *Id.* ¶ 679.[1]

As the Commission recognized, the overwhelming weight of economic theory and regulatory practice required a LRIC-based approach to serve those goals. *Id.* ¶ 692. In particular, no other approach could send the right economic signals to incumbents and entrants alike. In promulgating its TELRIC rules, the Commission hewed closely to established LRIC theory and practice, and the resulting regulations are in all major respects a model of regulatory efficiency.

The Commission based its TELRIC rules on fundamental economic principles, each of which is as valid today as it was in 1996. *First*, the TELRIC rules require that prices be based on *forward-looking* cost to reflect how firms (and consumers) make economic decisions—history is unchangeable, but future decisions can be controlled. 47 C.F.R. § 51.505; *Local Competition Order* ¶ 683; *see also* Mayo Essay at 7; Baumol Essay at 3-4. *Second*, the TELRIC rules require

[1] And, as the Supreme Court noted in upholding the TELRIC rules, the policy of the 1996 Act is to encourage "novel ratesetting designed to give aspiring competitors every possible incentive to enter local retail telephone markets, short of confiscating the incumbents' property." *Verizon Communications*, 535 U.S. at 489.

that prices be based on *long-run* costs to reflect that prices in competitive markets converge to long-run costs; any firm contemplating entry will not yet have constructed its plant, and will therefore compare its own expected long-run costs to retail prices for telecommunications services. 47 C.F.R. § 51.505; *Local Competition Order* ¶¶ 677, 679; *see also* Mayo Essay at 8; Baumol Essay at 3, 5-6. *Third*, the TELRIC rules require that prices reflect the least-cost, most efficient technologies and practices, a constraint that market forces impose in competitive and contestable markets. 47 C.F.R. § 51.505; *Local Competition Order* ¶ 685; *see also* Mayo Essay at 8-9; Baumol Essay at 3, 5-6. *Fourth,* the TELRIC rules require that prices reflect only costs that are properly attributable to the facilities or services that are purchased. 47 C.F.R. § 51.505; *Local Competition Order* ¶ 691; *see also* Mayo Essay at 10; Baumol Essay at 3.

Nearly eight years of practical experience have confirmed the wisdom of the basic TELRIC framework. Every major aspect of the Commission's TELRIC methodology was tested and affirmed by the courts, including the Supreme Court. *Verizon*, 535 U.S. 467. The TELRIC rules have now successfully been applied to produce element-specific rates in literally hundreds of state commission proceedings (and a number of Commission proceedings, including the recent Virginia UNE Arbitration proceeding and universal service cost model proceedings). These arbitration and other rate proceedings have themselves been subject to extensive review—and, almost without exception, approval—in scores of published decisions by both the federal courts and the Commission (*e.g.*, in section 271 proceedings). Based on state commission experience and guidance from the Commission and federal courts, TELRIC-based UNE pricing proceedings are now "surprisingly smooth-running affairs" that use remarkably robust and transparent cost studies and models to produce highly detailed and accurate forward-looking cost estimates. *Id.* at 522.

Actual experience has all but silenced the initial criticisms of the TELRIC rules. *Notice* ¶ 37 ("We also note the general absence of criticism showing that a forward-looking costing methodology per se is flawed or unreasonable"). And even where the Bells do continue to push their traditional criticisms of TELRIC—*e.g.*, that it is confiscatory and deters investment—they now do so with much less conviction and in the face of overwhelming evidence to the contrary. In this regard, the Bells have not even attempted to make the showings that the Commission expressly invited in 1996—*i.e.*, to demonstrate that the Commission's TELRIC rules, as actually applied, produce confiscatory rates. *Local Competition Order* ¶ 707. Rhetoric that TELRIC produces ruinous rates is further refuted by the Bells' own economic success and investment behavior. The Bells continue to prosper even though nearly 15 million local customers get telephone service from UNE-based providers that lease elements at TELRIC rates.[2]

Contrary to their rhetoric, the Bells also continue to invest to upgrade and expand their networks. The actual marketplace evidence confirms what economic theory predicts—the competition fostered by TELRIC-based UNE rates has increased ILEC incentives to invest. Willig Decl. ¶¶ 44-45. Indeed, although entry barriers prevent CLECs from duplicating many ILEC facilities (and, in the case of barriers such as hot cuts, often prevent CLECs from using even facilities they could potentially duplicate to provide competing local services), there has been massive investment—unlike any the telecommunications industry has ever seen—by CLECs and ILECs alike since the TELRIC rules were implemented.

And the Bells simply ignore the most obvious public interest benefits of TELRIC-based UNE pricing. Although the Bells' litigiousness and foot-dragging caused years of delay in the full implementation of the TELRIC rules, the enormous investment that AT&T and other

[2] Local Competition Report, Table 4, June 2003, *available at* http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcom0603.pdf

entrants have made to enforce those rules has served consumers and competition well. It is only because many states have faithfully applied the Commission's rules in recent years that millions of customers now have local telephone choice.

The Commission is thus correct in concluding that its "decision remains sound to base UNE prices on the forward-looking cost of providing UNEs" and in "declin[ing] to open an inquiry into alternative pricing theories." *Notice* ¶ 37. This proceeding, according to the Commission, therefore, is meant solely to "clarif[y] or modif[y] . . . the current FLEC-based rules that will more fully satisfy the Commission's policy goals and the statutory requirements of section 252(d)(1)." *Id.* However, much of what the ILECs pass off as criticisms of the particulars of the current TELRIC rules are, in fact, fundamental assaults on forward-looking economic pricing. Indeed, most of the ILECs' proposed modifications—some of which have found their way into the *Notice*—would, in fact, signal a return to prohibited and patently inefficient embedded cost pricing.

This does not mean that the industry would not benefit from some limited Commission clarification of proper application of the existing TELRIC rules. On the contrary, some clarification is unquestionably required to deal, for example, with limitations on unbundling that the Commission imposed in the *Triennial Review Order*. *See* Part IV, *infra*. Additional clarification is likewise appropriate to remove uncertainty regarding proper application of the TELRIC rules to particular cost model inputs. *See* Part V, *infra*. And there are certainly ways in which the Commission could take several simple steps to streamline state commission TELRIC proceedings. For example, the Commission should end the ability of ILECs to manipulate the rate-setting process by withholding critical information such as contracts with switch or other equipment vendors and granular usage data by formally putting the burden of proof on the ILECs

in all UNE rate cases and by requiring the production of such information—subject to appropriate protective orders—at the outset of all rate cases.

But the Commission must strongly resist efforts—and there will be many—to steer the UNE pricing rules away from the sound mooring of LRIC. Many of the Act's successes are directly traceable to the Commission's foresight in 1996, and resolve since then, that UNE rates must be based on LRIC to send the correct economic signals. Because LRIC pricing "yields prices similar to the efficient prices that would emerge in a fully competitive market," entry decisions based on those "prices have repeatedly been shown to promote the public interest" and to fully compensate the incumbents for the use of their networks. Baumol Essay at 2. The Commission thus should not, as the incumbents will certainly advocate, jettison the hard work and economic analysis that has finally begun to bear fruit—competitive entry—and implement a new protectionist regime that would return incumbents to their full monopoly status.

II. THE BELLS' CONCEPTUAL CRITICISMS OF TELRIC ARE BASELESS.

A number of the issues raised in the *Notice* echo the Bells' conceptual assault on TELRIC itself. The Commission has asked, in particular, whether: (1) TELRIC, rather than modeling "actual" or "real world" networks, assumes that networks are completely and "instantaneously" rebuilt whenever technology advances; (2) TELRIC models provide an overly simple and abstract representation of actual customer locations, topography, and network routes; (3) TELRIC-based pricing deters investment by the ILECs and potential entrants; and (4) TELRIC models are too complex, opaque, costly and impractical for state commissions to apply in rate cases. *See Notice* ¶¶ 49-61. These have been favorite Bell arguments against TELRIC since 1996. The frequency with which the Bells have advanced them, however, cannot obscure their lack of merit. The Bells' arguments are a caricature of what TELRIC assumes and how it works; they are refuted by the Bells' own actions; and they repeatedly have been rejected by the Supreme Court, this Commission, state commissions and reputable economists.

A. TELRIC Properly Revalues Older Assets In Light Of Current Technology.

A principal Bell attack on TELRIC targets its requirement that costs reflect a forward-looking network and the most efficient commercially available technology. This assumption, the Bells argue, ignores the continued use of older network assets even after newer and more advanced technology has become commercially available: no carrier, "no matter how competitive the marketplace," is likely to "deploy new technology instantaneously and ubiquitously throughout its network." *Notice* ¶ 68; *id*. ¶¶ 31, 50.

This argument is an attack on a straw man. The TELRIC model does not assume that incumbents jettison all their older network assets, instantaneously or otherwise, when newer and better technology reaches the market. Rather, TELRIC assumes that the advent of improved technology will cause older assets to be *revalued*. Willig Decl. ¶¶ 27-31. That assumption is

absolutely correct. In competitive or contestable markets, the economic value of existing technology is always limited, or "capped," by the forward-looking economic value of the most efficient technology currently available on the market. Baumol Essay at 6-7. It is entirely proper for the UNE pricing rules to adopt the same assumption. Willig Decl. ¶ 27.

A simple example illustrates this point. The economic value of a computer purchased by an incumbent in 2001 cannot exceed the cost of the new and far better computers that are available today, because no economically rational consumer would be willing to pay a higher price for an old computer with a given level of performance and capacity than for a brand new computer with the same performance and capacity. Therefore, although the old computer was not "ripped out" and replaced with a new computer, the economic value of the old computer is capped by the value of the new computer. Baumol Essay at 6-7. Because the cost of a unit of computing capacity is continually declining as computer technology advances, the economic value of an older computer declines as well.[3]

The same fundamental economic principle applies to all of the equipment in the incumbent's network: The economic value of an incumbent's network cannot exceed the forward-looking economic costs of a network deployed with the most efficient technology available today. Willig Decl. ¶ 28.[4]

The incumbents' own behavior confirms that the economic cost of continuing to use older technology is less than or equal to the economic cost of replacing it with new technology. If the opposite were true, then incumbents presumably would have made the substitution. *Id*. ¶¶

[3] Indeed, this reduction in economic value of the asset is an essential component of the economic depreciation that the Commission's rules require to be incorporated into TELRIC. *See* Clarke Essay at 4.

[4] This may not be true, of course, if older equipment has become such an antique that its value as a collectible exceeds its value as an input of production. Baumol Essay at 8. No one has suggested that this circumstance holds for the ILECs' local network assets.

27-31. But much of the investment in the incumbents' existing networks is sunk, which means that the forward-looking cost of a flash-cut to all-new equipment would be more than the economic costs of continuing to operate the old equipment. *Id.*

For these reasons, it is essentially irrelevant whether the Commission abandons its prior, and correct, position that proper forward-looking economic cost studies should assume the use of the most currently available technology, and instead permits cost models to assume the use of "analog switches or older versions of digital loop carrier systems." *Notice* ¶ 69. Because the economic value of the existing technology equals the cost of providing the same functions with the most efficient technology available today—not the price originally paid for those assets (original or embedded cost), or the cost of duplicating those assets today (reproduction cost)—it matters not whether new or old equipment is assumed to provide the functions: in either case, if UNE prices are to send correct economic signals, the assets must be valued so that the overall cost of using them does not exceed the cost of using the most efficient technology available today. Willig Decl. ¶ 28.[5]

Lacking any coherent response, the Bells have complained that even if new equipment, systems and practices that are cheaper and more efficient can be expected to devalue older, less efficient equipment, systems and practices—as they so clearly do—TELRIC improperly assumes that this will happen "instantaneously," while in "real" telecommunications networks, changes are made over time. At bottom, the Bells are quarrelling with the very concept of pricing based on economic costs. Of course, in high sunk cost industries such as the local telephone network,

[5] The Commission similarly asks how state commissions should "determine the price for equipment in the incumbent LEC network that no longer is widely used in the industry." *Notice* ¶ 69. Again, the same basic economic principles apply. The economic value of that equipment is capped by the economic cost of obtaining the same functionalities from new equipment available in the marketplace. Willig Decl. ¶ 30. Therefore, the value of orphaned assets can conservatively be estimated using the simplifying assumption that all of the equipment in the network is the most up-to-date available. *Id.*

new technologies may be incorporated quite slowly because, in the short run, existing sunk assets are effectively "free." But it is precisely because of the sunk nature of the incumbents' facilities that alternative deployment of facilities is often not economically feasible. *Triennial Review Order* ¶¶ 77, 80. In turn, the Commission's pricing rules seek to "replicate" the workings of a contestable/competitive market precisely because existing entry barriers preclude the development of such competition in the real world. *Local Competition Order* ¶ 679. And, as explained above, in effectively contestable/competitive markets, a firm can charge "prices that cover *only* the costs of this currently available, most efficient equipment" regardless of whether the firm has deployed such equipment. Baumol Essay at 7.

The Bells are also wrong on the facts—TELRIC does not assume "instantaneous" and ubiquitous deployment and redeployment of the new technology and equipment in ways that doom ILECs to underrecovery. As the Supreme Court recognized in rejecting this argument, the FCC's TELRIC rules depart from an optimally efficient network standard in taking the ILECs' existing wire center locations as a given. *Verizon*, 535 U.S. at 505. Further, "TELRIC rates . . . are set by state commissions, usually by arbitrated agreements with 3-or 4-year terms . . . and no one claims that a competitor could receive immediately on demand a TELRIC rate on a leased element" that reflects an intervening change in technology. *Id.* at 505-06. Indeed, as the Supreme Court noted, it often takes a considerable period before a new technology is sufficiently proven such that there would be sufficient evidence that the new technology would be able to provide existing capabilities at a lower cost. *Id.* at 506.

But most fundamentally, the Bells are simply incorrect in suggesting that application of TELRIC principles in state commission UNE rate proceeding is an exercise in modeling truly revolutionary and paradigm-shifting technologies that would not be expected to be widely deployed for years. To the contrary, TELRIC models, in actual practice, model technologies and

practices that have been proven and widely deployed—including by the ILECs themselves. Thus, for example, disputes about switching prices do not involve whether an entirely new type of switch technology should be assumed, but how the costs should be determined for the very same digital switches that the Bells have been deploying for years (and which are now all but ubiquitous in the Bells' networks). Similarly, prices for hybrid fiber-copper loops are based on the GR-303 compliant digital loop carrier ("DLC") technology that ILECs have been deploying in their networks for the last half-dozen years or more. And the same engineering guidelines used by the incumbents today to place outside plant form the basis of existing TELRIC calculations.

B. The TELRIC Standard Allows, And Modern Cost Models Reflect, Use Of Appropriate Data On Actual Topography and Customer Locations.

The Bells also claim that the TELRIC standard is defective because TELRIC cost models ignore or abstract from actual network attributes such as "routing and topography." *Notice* ¶¶ 52-53, 63-66. This argument is both a *non sequitur* and a falsehood.

First, nothing in the TELRIC methodology precludes the use of real world topography, customer locations and right-of-way corridors. It is important to recognize that the determination of the routing and terrain data used to model forward-looking costs is a conceptually distinct issue from the choice of whether to adopt economic or "actual" cost models. *Cf. Notice* ¶ 56. Fidelity to the cost impacts of the real external constraints (*e.g.*, customer locations and terrain) is a legitimate inquiry. Because the goal is obtaining reasonable forward-looking cost estimates and not detailed network maps or construction plans, the focus must, of course, be on whether the simplifying abstractions inherent in any cost modeling project are reasonable. And, it is plainly *illegitimate* to require fidelity to the particular embedded methodology that the ILEC chose to deal with these external constraints. The Bells' emphasis on these modeling details is

clearly a smokescreen for their real agenda: persuading the Commission to accept embedded, reproduction, short-run, or inefficient costs while paying lip service to TELRIC.

Second, the Bells have greatly overstated the extent to which TELRIC models currently abstract from geographic realism. As litigants and regulators have gained experience with the TELRIC methodology in actual rate cases, TELRIC-based cost studies have incorporated richer and more complex data sets and "real-world" geographic detail. For example, one of the most important "real world" characteristics for the purposes of estimating forward-looking costs is population density and location. Bryant Essay at 11. In less dense areas, more telephone cable (and related equipment) is required for each telephone customer because telephone customers are more dispersed. By contrast, in higher density areas less cable and other equipment is required for each customer because customers live closer together (the extreme case would be customers located in adjoining apartments in the same building). *Id.* Modern TELRIC models capture cost associated with density differences with extreme precision. *Id.* Indeed, TELRIC cost studies often rely on "geocoded" data that provides the *exact* location of every customer (or in some cases extrapolated data based on a sample of geocoded customer location data).[6]

The increasingly precise identification of customer locations has also increased the realism with which models account for natural geographic obstacles such as rivers and mountains. Except in the most extreme cases, customers generally live in "clusters" located in geographic areas where the terrain is suitable for building (indeed, customers usually live in homes or apartment buildings). Customers are not clustered where natural features such as lakes or mountains would prevent building. Accordingly, modern TELRIC models that rely on detailed customer location data automatically account for natural obstacles to building telephone

[6] The algorithms used to extrapolate customer location data based on samples almost invariably overstate the amount telephone plant, thereby overcompensating incumbents. Klick Decl. ¶ 48.

plant. Moreover, in each cluster (and where plant must be placed to connect clusters), the cost models expressly incorporate highly detailed data regarding local soil conditions (rock, sandy, dirt), water table depths, and other terrain characteristics that affect the cost of building and installing telephone plant. Klick Decl. ¶ 57.

As more detailed and precise geographic databases are developed, further improvements in cost modeling will no doubt ensue. Nevertheless, the Commission should recognize that absolute accuracy and detail is infeasible. No cost model, and no set of ILEC books and records, has ever mirrored, or could mirror, the real world or real networks in atomistic detail. Indeed, no party has ever identified a cost model or cost study, whether TELRIC or otherwise, that could do so. Simplification and abstraction are inherent in network cost estimation. Klick Decl. ¶ 46.

Several factors dictate caution in evaluating claims that particular model refinements are worth the cost and effort. First, simplifying assumptions are entirely appropriate when greater realism is infeasible, or the results are unlikely to change enough to justify the added cost of the greater input detail. For example, although the amount and type of telephone plant reflects barriers that might occur within geographic areas where customers are clustered, the data needed to identify all such obstacles are obviously lacking. Accordingly, to ensure that sufficient telephone plant is reflected in the modeled network, modern TELRIC models already use algorithms and assumptions that build in significant amounts of extra cable for routing around and over obstacles. For example, "right angle routing" is a technique that assumes that cable travels only in straight lines (along north, south, east or west axes), and turns only at right angles. This assumption models how roads in most cities and towns are built. Moreover, where it departs from reality, it tends to produce estimates of cable plant that are conservatively high, because nonrectilinear routes generally reflect the existence of alternative shorter (diagonal, or "as the crow flies") routes. *See, e.g., Virginia Arbitration Order* ¶ 180.

In this regard, the Commission should be especially careful to distinguish between greater accuracy in modeling exogenous cost constraints (*e.g.*, customer locations, terrain, and rights-of-way), and endorsing a standard that would be tantamount to the "discredited" reproduction cost standard that would mindlessly replicate of inefficiencies in existing ILEC plant design. The point of TELRIC cost models is to estimate the forward-looking, economic costs of serving existing demand, at the locations that service is demanded, and subject to geographic constraints on reaching that demand. While use of the ILECs' "actual" network would, to some degree, reflect these exogenous cost constraints, it would also necessarily result in costs well in excess of the level necessary to serve efficiently existing demand.

Moreover, increased reliance on the ILECs' actual practices and records would, in fact, make cost calculations less verifiable and transparent and more subject to manipulation and abuse. The sole sources of such "actual" data are the ILECs themselves. They would have "strong incentive[s] to manipulate this cost information to suggest excessively high costs associated with the provision of UNEs." Bryant Essay at 6. Indeed, this is exactly what occurred in the first round of UNE proceedings conducted in 1996 and 1997. There, "many ILECs presented cost studies that allegedly relied upon the 'actual' characteristics of their networks. In many cases, it took months of discovery—often repeated in state after state—to determine that these 'actual' data were not actual at all." Klick Decl. ¶ 51 (giving examples). In contrast, "engineering/economic cost models tend to be quite open to independent analysis." Bryant Essay at 6.

The problems associated with relying on "actual" ILEC practices are heightened by the notorious inaccuracy of the incumbents' records. *Verizon Communications*, 535 U.S. at 517-18. The LECs' investment records for central office equipment are bloated with "phantom" assets, and there is no reason to believe that the LECs' records for other classes of assets are any more

reliable. *Continuing Property Records Audit* ¶ 1 ("upon a physical examination of the companies' central offices, neither company personnel nor Bureau auditors were able to locate certain central office equipment which is recorded in the companies' books and accounts"). For outside plant, the incumbent carriers' records reflect outdated cable routes and/or cable descriptions, and include redundant or duplicate plant. Klick Decl. ¶¶ 58-74. The reason is that, before the mid-1990s, the incumbents' outside plant records were all in hard copy form. When the records were computerized, the incumbents rarely went back and tried to incorporate the historical records—which themselves had been modified numerous times. Further, incumbents routinely "groom" their outside plant, which means that they disconnect unused plant although it is often still shown on the outside plant cable diagrams.

Finally, ILECs simply do not maintain records that can accurately describe, in any sort of readily retrievable and usable fashion, the actual quantities and locations of cables, poles, conduits, trenches and cable types that are currently in place in the ground today in any given study area. Klick Decl. ¶¶ 68-74. Rather, "these records are maintained only for broad categories of plant" and cannot be used to determine accurate per-line costs. Bryant Essay at 4.

C. TELRIC Encourages Efficient Levels Of Investment.

The argument that TELRIC-based pricing has caused underinvestment in local networks is another favorite of the Bells. *Cf. Notice* ¶¶ 3, 39, 52, 54, 57, 83. Here, Bell advocacy has become completely unmoored from reality.

The gulf between rhetoric and fact begins with actual investment dollars. The capital stock of the local telecommunications industry has skyrocketed since 1996, and remains at record levels. *AT&T Opposition*, Att. B at 24-27 (attached hereto). In *Verizon*, the Supreme Court found that competitive LECs had invested $55 billion from 1996-2000. *Verizon*, 535 U.S. at 517. A "regulatory scheme that can boast such substantial competitive capital spending over a

4-year period is not easily described as an unreasonable way to promote competitive investment." *Id*. As of 2002, that figure had increased substantially. *Notice* ¶ 3 n. 4 ($71 billion).[7]

If anything, industry investment plans are accelerating. Four months ago, Verizon, the largest Bell company, announced a fiber-optic investment initiative that rivals in scale "the construction of the Roman aqueducts":

> Verizon plans to roll out fiber-optic connections to every home and business in its 29-state territory over the next 10 to 15 years, a project that might reasonably be compared with the construction of the Roman aqueducts. It will cost $20 billion to $40 billion, depending on how fast equipment prices fall. . . . The company says it will pump $12.5 to $13.5 billion into capital expenditures this year, the third-largest capital budget in the world after DaimlerChrysler and General Electric Co. That's on top of the $3 billion a year it's paying in yearly interest because of its $54 billion debt load. How can Verizon pay for all this? *Its business is one of the great cash machines of Corporate America.* The largest local-phone operator and the largest wireless company, Verizon generates about $22 billion a year in cash from operations. That's 50% more than SBC, twice as much as BellSouth, and nearly three times as much as AT&T. . . . [Verizon CEO] Seidenberg expects to cover the fiber-optic initiative without raising the capital budget above the current level, while he continues to reduce the company's debt. '*Funding is not an issue*,' he says."

Business Week (August 4, 2003), at 53-55 (emphasis added). The contracts for this gargantuan project have apparently already been signed. *Verizon Reply Comments*, at 1.

The ILECs' professed desire to encourage more facilities-based investment by their rivals is counter-intuitive in another respect: more investment by local competitors would be at odds with the incumbents' self-interest. As Adam Smith observed more than 200 years ago, we expect market participants to act not from their "benevolence," but from "their own regard to their own interest."[8] Experience in many industries teaches that infrastructure companies seek to

[7] New Paradigm Resources Group, Inc., *Measuring the Economic Impact of the Telecommunications Act of 1996: Telecommunications Capital Expenditures 1996-2001* (2002).

[8] Adam Smith, *Wealth of Nations*, book 1, chapter 2 (1776).

block new investment in competitive facilities. Once a competitor has facilities in the ground, the previous incumbents risk having their prices driven well below LRIC. Under any circumstances, margins get squeezed, and the competitive environment becomes more onerous. Hence, the obvious motive for the incumbents' advocacy of higher UNE prices is not a wish for more facilities-based competition, but a desire to suppress it. Klick Decl. ¶ 11; Willig Decl. ¶¶ 39-41.

Economic analysis confirms the hollowness of the investment incentive argument. First, the relevant economic goal is not (as the ILECs suggest) to subsidize more investment, regardless of its relative costs and benefits. Rather, the economically efficient goal is to encourage *only* that investment whose incremental benefits are expected to cover its incremental economic costs. *Id*. ¶ 32. Government policies that encourage investment beyond this point waste scarce economic resources by shunting investment dollars from more efficient to less efficient uses, and thus make society worse off. Hence, the proper goal of UNE pricing is to give market participants the price signals for efficient investment that would occur in a contestable market. *Id.* ¶ 34.

The pricing standard that best achieves this is TELRIC. *Id.* TELRIC-based UNE prices provide the appropriate signals for competitive carriers' build-vs.-lease decisions because LRIC-based rates represent the economic cost of the facilities used to provide a UNE. Where a competitive carrier can deploy that facility at a cost at or below the LRIC of the facility, it is efficient for the competitive carrier to do so. Conversely, where a competitive carrier can deploy a facility only at a cost higher than the LRIC of that facility, it is inefficient and socially wasteful for it do so. *See Local Competition Order* ¶ 672 ("We believe that the prices that potential entrants should pay for these elements should reflect forward-looking economic costs in order to encourage efficient levels of investment and entry.").

In any event, even if a simple-minded policy of maximizing facilities-based "investment" were desirable, there is no reason to believe that increasing UNE prices would accomplish it. First, the implicit premise of this theory—that CLECs are using UNEs instead of building their own facilities because UNEs are too "cheap"—is demonstrably wrong. Even when UNEs are strictly priced at TELRIC, CLECs have strong incentive to invest in alternative facilities where feasible, even if it costs them more than leasing the facility from the ILEC. CLECs are understandably reluctant to depend on a supplier of critical inputs that has little incentive to supply those inputs in a commercially reasonable manner. Willig *TR* Reply Decl. ¶ 10.

Indeed, the evidence shows that the danger of depending on the good faith of ILECs has caused CLECs to *over*-invest in their own facilities, despite the availability of TELRIC-priced UNEs. The evidence shows there have been widespread failures by CLECs who have relied on self-provisioned local circuit switches and associated facilities to serve business customers. Willig *TR* Decl. ¶¶ 85-97. Many other CLECs that have self-provisioned switches have filed for bankruptcy. Likewise, aggregate levels of CLEC investment in voice fiber and data switches have been substantial, yet facilities-based CLECs have, almost without exception, been unable to fill the facilities that they have deployed with sufficient traffic to cover the costs of the facilities and the CLECs' related support costs and investment. *Id.* ¶ 94. Literally scores of facilities-based CLECs have been driven into bankruptcy as a result, and many others remain on life support. *Id.* ¶¶ 95-96.

In all events, whatever merit the sink-or-swim theory of UNE pricing might have possessed was extinguished by the *Triennial Review Order*. There, the Commission eliminated unbundled access to any UNEs that it believed were capable of "multiple competitive supply." *Triennial Review Order* ¶¶ 87 n. 283, 329 n. 974. Indeed, the Commission eliminated access to UNEs even where there were no demonstrated alternatives but where, based on a "business

case," bypass could be deemed potentially feasible. *See* 47 C.F.R. § 51.319(a)(5)(ii) (potential deployment of enterprise loops); *id.* § 51.319(d)(5)(iii)(B) (potential deployment of switching); *id.* § 51.319(e)(2)(B)(ii) (potential deployment of dedicated transport).

For the subset of network elements that are still subject to mandatory unbundling, the notion that charging higher UNE rates will "incent" CLECs to self-deployment is as nonsensical as the notion that throwing a fish from a window will teach it to fly. When the natural monopoly characteristics of an element make its self-deployment economically infeasible, pricing Bell UNEs above forward-looking cost levels means no entry at all. *Triennial Review Order* ¶¶ 87-91. And to the extent that UNEs are used as a bridge to facilities-based entry, higher UNE rates will affirmatively retard the deployment of bypass facilities. Willig Decl. ¶ 38. Similarly, high rates for critical UNEs can preclude CLECs from deploying complementary assets that can provide service only when used in conjunction with the UNEs. *Id*. 36. For example, allowing ILECs to charge monopoly prices for high-capacity loop and transport facilities can preclude CLECs from deploying enterprise switches because the CLECs need to connect those switches to customer locations to provide retail service.[9]

The Bells' claim that TELRIC-based pricing weakens the *incumbents'* own investment incentives is equally meretricious. The incumbents have adequate incentives to invest in new facilities where the rate for unbundled access includes a forward-looking, risk adjusted cost of capital and depreciation lives. And as the Supreme Court has recognized, TELRIC expressly provides such returns. *See Verizon*, 535 U.S. 519 ("TELRIC itself prescribes no fixed

[9] Likewise, overpricing UNEs impedes deployment of alternative facilities by CLECs in those limited instances when doing so would be potentially economic. Willig Decl. ¶ 36. For example, CLECs can rely on UNEs to overcome "first mover" entry barriers by winning customers before deploying facilities and then growing to the scale necessary to justify economic investment in their own facilities. *Id.* ¶ 38. As the *USTA* court noted, "access to UNEs may enable a CLEC to enter the market gradually, building a customer base up to the level where its own investment would be profitable." *USTA v. FCC*, 290 F.3d 415, 424 (D.C. Cir. 2002).

percentage rate as risk-adjusted capital costs and recognizes no particular useful life as a basis for calculating depreciation costs" and, therefore, may be "adjusted upward if the incumbents demonstrate the need"); *id.* at 521 ("TELRIC rates leave plenty of room for differences in the appropriate depreciation rates and risk-adjusted capital costs depending on the nature and technology of the specific element to be priced.").

For precisely these reasons, the incumbents have conceded that so long as TELRIC includes an appropriate risk-adjusted cost of capital, no underinvestment need result. Verizon economists Kahn and Tardiff acknowledged in the *Triennial Review* proceeding that "in its reply brief to the Supreme Court, the FCC described how, in principle, TELRIC can be sufficiently flexible to accommodate investment risks in a way that is approximately correct economically." Kahn-Tardiff Reply Decl. ¶ 29 n. 52 (citing *FCC Verizon Reply Brief*). These incumbent economists made the same concession in the original Local Competition Proceeding. *FCC Verizon Reply Brief* at 10-11 ("Indeed, in the FCC rulemaking that produced TELRIC, the incumbents acknowledged that an accurate calculation of economic depreciation and the costs of capital would obviate the problem that they allege here.") (citing statements); Arrow, *et al*. Essay. Thus, so long as UNE rates "accommodate[] reasonable economic assumptions about future technological advances and the effects of those advances will have on the value of current assets" with respect to depreciation lives and provide for a "risk-adjusted cost of capital," *FCC Verizon Reply Brief* at 11, 12 & n.8—as TELRIC requires that they do—the incumbents are adequately compensated and will invest in new facilities when it is efficient to do so.

The Bells' claim that more investment will follow if only the incumbents were allowed to earn supra-competitive profits from UNEs is also baseless. Economists have thoroughly

documented the tendency of monopoly to weaken incentives to invest in innovation.[10] And competition gives incumbents added incentives to improve their networks to avoid losing customers to new entrants. *Verizon*, 535 U.S. 517 n.33 (it is "commonsense . . . that so long as TELRIC brings about some competition, the incumbents will continue to have incentives to invest and improve their services to hold on to their existing customer base").

Furthermore, the efficiency improvements induced by competition, and the pressure competition places on above-cost pricing, are likely to cause lower retail prices, which in turn should result in increased demand. Growing demand will induce additional investment in facilities by both ILECs and CLECs. Moreover, a competitive environment encourages both incumbents and entrants to innovate and improve quality, leading to further investment. The bloated UNE rates sought by the incumbents, in contrast, would eliminate such competitive pressures, thereby reducing the incentive of incumbents to invest.

Empirical evidence confirms that lower UNE prices translate into increased facilities-based investment in local networks. Employing standard econometric procedures, several studies have directly measured the extent to which incumbent network investment has been impacted by local competition. Willig Decl. ¶ 44-45. Overall, this evidence shows (within traditional statistical significance intervals) that a reduction in UNE rates causes a significant increase in incumbent LEC investment. *Id*.

On the weakest of "investment incentive" showings, the Commission in the *Triennial Review Order* granted the Bells extraordinarily wide-ranging insulation from broadband regulation—and competition. As Commissioner Martin has made clear, it is now time for the

[10] *See* Harvey Leibenstein, *Competition and X-Efficiency*, Journal of Political Economy, May 1973, at 766; Harvey Leibenstein, *Allocative Efficiency vs. "X- Efficiency,"* American Economic Review, Vol. LVI 1966, at 392-414; William S. Comanor and Harvey Leibenstein, *Allocative Efficiency and the Measurement of Welfare Losses*, Economica, Vol. XXXVI, Aug. 1969, at 304-09.

Bells to ante up: if "incumbents want to seize this opportunity, they cannot sit idly by." Martin Tells ILECs He Doesn't Buy Deregulation Of Legacy Networks, *Communications Daily* (Dec. 8, 2003).

D. The TELRIC Standard Does Not Make UNE Pricing Cases Overly Complex Or Costly.

The *Notice* alludes to concerns previously expressed by some parties that the Commission's current TELRIC rules lead to "extremely complex" rate cases that drain the resources of both state commissions and parties. *Notice* ¶¶ 6-7. The Commission also suggests that UNE rates vary significantly from state to state, and that this variation may be a result of the "complexity" and uncertainty of the current rules. *Id.* In truth, the Commission's TELRIC rules remain easier to administer than any of the alternatives. Moreover, with each passing year, TELRIC becomes easier to administer, and the inevitable variations between the states become less and less significant. Whatever complexity and variation exist in TELRIC proceedings provide no grounds for making any fundamental changes in the TELRIC methodology.

First, the Commission's TELRIC methodology is not unduly complex. Any methodology the FCC chooses will inevitably lead to complex and intensely litigated rate cases, simply because of the stakes and the complexity of the telecommunications network itself. That said, the vast majority of the delay and expense of TELRIC rate cases over the years has been generated by discovery disputes with incumbent LECs, not by any shortcomings in the TELRIC methodology itself. *See* Klick Decl. ¶ 53 ("My experience in numerous TELRIC proceedings during the past seven years is that the resolution of discovery disputes has been a key contributor to the complexity and time-consuming nature of these proceedings, and a very significant drain on state commission resources.").[11]

[11] TELRIC methodologies, like the one the FCC has adopted, are widely used in many contexts and are not unusually complex. Indeed, the state commissions themselves used a version of the (continued . . .)

Moreover, TELRIC proceedings are only becoming easier to administer. Over the course of the last seven years, state commissions have worked through most of the fundamental issues surrounding TELRIC pricing, and there is now a large body of precedent—from both the state commissions and reviewing federal courts—that effectively narrows the range of issues in any future TELRIC proceedings. As the Supreme Court itself recognized, "TELRIC rate proceedings are surprisingly smooth-running affairs." *Verizon*, 535 U.S. at 522. The worst possible thing the Commission could do now (from the standpoint of administrability) would be to adopt fundamental changes in the TELRIC methodology, which would require all of the state commissions to start over and conduct full-blown rate cases on the basis of an entirely new set of premises.

That is especially true given that the principal proposed alternative to TELRIC—e.g., a pricing methodology that depended more on the "actual" incumbent network—would be intrinsically more difficult to apply. A methodology relying more on the incumbent's "actual" network would require an exponential increase in the amount of discovery necessary from the incumbent LEC. But even this would be unavailing. Plant records are not maintained in generally consistent formats by the ILECs. Some localities may have electronic records and maps, others may have only hard copies in idiosyncratic formats. Further, as noted above, there is substantial evidence that the LECs have inflated their book costs by listing investments in equipment that is not currently even to be found at the location stated in the ILEC's plant records. Moreover, network element rates must reflect the different costs in zones having

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methodology in local competition proceedings prior to the 1996 Act. *Local Competition Order* ¶ 631 nn.1508 & 1509. The ICC and the Surface Transportation Board also used such methodologies in determining the maximum rates that railroads can charge captive shippers. *Coal Rate Guidelines*, 1 I.C.C.2d at 528-29, 542-43, 547 n.73; *PEPCO* v. *ICC*, 744 F.2d 185, 193-94 (D.C. Cir. 1984); *Burlington N. R.R.* v. *ICC*, 985 F.2d 589, 596 (D.C. Cir. 1993); *McCarty Farms, Inc.* v. *Surface Transp. Bd.*, 158 F.3d 1294, 1301 (D.C. Cir. 1998).

different population densities and terrain, but, as the Commission has previously recognized, the ILECs' books provide investment figures only on a statewide basis for broad categories of network and other equipment. *See, e.g., Universal Service Order* ¶¶ 226, 232. Therefore, accurate UNE rates would require either extensive discovery to determine the ILECs' costs on a sufficiently disaggregated and local basis, or would require inherently arbitrary allocations of statewide costs.[12]

The discovery necessary to develop accurate information about the incumbents' "actual" networks would increase the complexity of TELRIC rate proceedings enormously. As noted above, incumbent LECs are in sole possession of much of the relevant evidence concerning their networks, and experience has starkly confirmed that no state commission could accept ILEC representations about their networks at face value. It is notoriously difficult, however, to extract the necessary information from the unwilling incumbents. The Supreme Court expressly recognized this difficulty with alternatives to TELRIC: "[t]o the extent that the traditional public-utility model generally relied on embedded costs, similar sorts of complexity were exacerbated by an asymmetry of information, much to the utilities' benefit." *Verizon*, 535 U.S. at 522 (emphasis added); *see id.* (reliance on the incumbent's network would "preserve home-field advantages for the incumbents"). One of the principal benefits of TELRIC is that it reduces these administrative difficulties.

Second, the variation of UNE prices from state to state should not be surprising. Congress provided in sections 251-52 that although the Commission could prescribe the

[12] *See Local Competition*, CC Docket No. 96-98, Comments of AT&T Corp., Appendix C (Affidavit of Baumol, Willig, and Ordover) (May 16, 1996) ("Baumol Aff."); *id.*, Reply Comments of AT&T Corp., Appendix B (Reply Affidavit of Baumol, Willig, and Ordover) ("Baumol Reply Aff."). There is also substantial evidence that incumbents have intentionally built substantial excess capacity for the future provision of enhanced services or future telecommunications demand, which would not be properly recoverable in UNE rates.

"requisite pricing methodology," the state commissions would "determine the concrete result in particular circumstances." *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 384 (1999). It is inevitable that some variation in rates will occur, regardless of what methodology the Commission chooses, for the simple reason that *costs* of providing UNEs can vary significantly from one area to another (principally as a function of population density). Such rate variation is inherent in the Congressional scheme of cost-based rates; it is not a reason to change the TELRIC methodology.

Moreover, many of the state-to-state variations in UNE prices are the responsibility of the ILECs themselves. ILECs have often proposed rates that vary substantially and idiosyncratically across the states in their regions. For example, SBC's proposed switching rates for California included a separate vertical feature charge that was omitted in every other SBC state. SBC admitted in California that this is a local "product management" decision (*i.e.*, not one that reflects any fundamental difference in costs from state to state).[13]

Given these constraints, the methodological consistency of state commissions in applying the TELRIC rules has been remarkably consistent. There have, of course, been differences of opinion and some outright errors, but that too is inherent in the Congressional scheme, regardless of the particular costing methodology the states implement. And, as the state commissions have gained experience with TELRIC, the variations in methodology across the country have been reduced. In the earliest TELRIC rate proceedings, state commissions did produce widely divergent rates; indeed, some states adopted absurdly high rates for certain UNEs. In recent years, however, as state commissions have learned from their own experience and from other

[13] *Cf.* Deposition of Dale T. Lundy (SBC Witness) in California Public Utilities Commission Application Nos. 01-02-024 et al., 11/18-19/2002, Tr. 291-292 ("As I indicated, I'm not the one who makes the decision on which rate structure we propose. That would have to be directed to wholesale marketing.").

states, UNE rates (adjusted for cost differences) are converging in a more narrow range, and UNE-based entry has increased markedly over the last two or three years as a result. *AT&T Opposition*, Att. B & C at 36-37, (attached hereto).

III. NONE OF THE PROPOSED ALTERNATIVES TO LONG RUN INCREMENTAL COST WOULD SERVE THE COMMISSION'S STATED GOALS.

A. The Bells' Proposed Alternative Cost Methodologies Violate Core Forward-Looking Principles And Would Block Competitive Entry.

The *Notice* seeks comment on a costing perspective that the Bells have recently advocated: a network "that incorporates upgrades planned by the incumbent LEC over some objective time horizon (*e.g.*, three or five years), as documented, for example, in an incumbent LEC's actual engineering plans." *Notice* ¶ 54. The *Notice* asks whether such a "short-run" cost methodology would be more "representative of the real world." *Id*. ¶ 53. The answer is quite clearly no. The Bells have touted their "short-run" perspective in only the most abstract and non-specific terms, and for good reason. The Bells have no interest at all in an approach that is truly based upon short-run incremental cost ("SRIC"). As detailed below, application of a SRIC standard to UNE pricing would produce rates much *lower* than the existing TELRIC standard. Rather, the Bells seek an arbitrary hybrid of SRIC (for those assets that will be replaced in the next 3-5 years), plus *reproduction* costs (for those existing assets that will remain in service throughout the short-run planning period). That arbitrary approach, which finds no support in any rational economic theory and has no analog in any real world market, would flatly violate the Commission's stated goal of a pricing standard that sends correct economic signals.

Short-Run Incremental Cost. The short-run incremental cost of a network element equals the additional costs incurred in providing service over a short-run period (*e.g.*, the next 3-5 years), compared with the alternative of not providing service during the same period. Willig Decl. ¶ 62. Adoption of a SRIC-based pricing standard for UNEs might be legally permissible, in the sense that such a methodology would not be a disguised form of embedded or reproduction cost. For the foreseeable future, however, the short-run incremental costs of UNEs are likely to be far below TELRIC—indeed, close to zero. *See* Ordover Essay at 13.

Most local network assets have economic lives in excess of 3-5 years. Moreover, much of the investment in those assets, once made, is sunk. The opportunity cost to society of continuing to use sunk investment is zero (at least when the pricing of the services of the sunk assets at zero does not encourage demand for the assets in excess of their capacity). And, particularly in the current economic environment, many or most local network assets are expected to have ample spare capacity for the foreseeable future. Willig Decl. ¶ 62. For sunk investment in long-lived assets that are not expected to require replacement or run out of capacity in the next 3-5 years, short-run incremental investment costs are close to zero. *Id*. ¶ 62[14] Under a SRIC standard, UNE costs would be limited to costs of upgrades expected over the short run planning horizon. And the incremental cost of long-lived assets that an ILEC plans to buy during the 3-5 year study period would be far less than the full purchase price of those assets, because a SRIC framework requires that the present value of the expected future stream of income from the assets after end of the costing time horizon be deducted from the purchase price. *Id*. ¶ 63; Klick Decl. ¶ 44. Plainly, the ILECs want nothing to do with a true SRIC cost standard. *See* Ordover Essay at 13 ("[i]t is doubtful that this is what the ILECs really mean, because in the telecommunications industry large amounts of investment must remain fixed over the short-run, and the costs of this fixed plant would not be permitted to be reflected in their pricing. On the other hand, if the ILECs proposal means that 'actual incremental costs' be measured over the long-run, then (because one must assume that the ILECs will deploy their investment efficiently in the future) 'actual incremental costs' reduce to TELRIC").

Reproduction Cost. Nor can the ILECs seriously advocate a true reproduction cost approach. Basing UNE prices on the current cost of reproducing the particular assets that happen

[14] If the asset's existing capacity would be exhausted over this short-run period, the only incremental cost is that needed to augment the asset to remedy its capacity deficiency—not the cost of replacing its entire capacity.

to be in the ground today, in their current configuration and technology mix, would be a complete non-starter. As the Commission acknowledges, reproduction cost ratemaking has been completely "discredited." *Notice* ¶ 69 n.112. The forward-looking cost of the actual ILEC network is not the cost of reproducing or cloning that actual network, but the cost of reproducing its *capabilities*, using the most efficient technology available today. In a competitive or contestable market, no one would pay a premium to purchase an old inefficient network over a new and efficient network of equivalent capability. *Id.*; *accord*, Willig Decl. ¶ 28; Klick Decl. ¶¶ 41-44.

"Reproduction Plus." The Bells instead appear to be asking the Commission to allow them to price sunk facilities at the higher unit costs of short-run growth equipment. Under this approach, prices for all units of demand, including existing demand, would apparently be based on the cost per-unit calculated for growth units of marginal demand. No efficient firm would ever incrementally incur this combination of costs "in the real world"—in either the long run or the short run. Willig Decl. ¶¶ 49, 65; Klick Decl. ¶ 41-44.

This "reproduction plus" approach is wholly illegitimate; indeed, it would be *worse* than a pure embedded cost methodology. The basic flaw in the incumbents' proposed standard is the hopeless inconsistency of its treatment of sunk investment and incremental costs. Willig Decl. ¶ 49-50, 65. *See also generally* Ordover Essay at 13-15. The incumbents first ask that forward-looking, incremental costs be calculated from the perspective of a short run time horizon, in which most of its network investment is sunk. The incumbents take this approach to justify the efficiency of piecemeal network expansion, which is rational only in the short- or intermediate-run, but not in the long-run. At the same time, however, the incumbents completely disregard the radical downward valuation of existing sunk investment that the short-run or intermediate-run time perspective requires. As explained above, consistent application of a short-run or

intermediate-run perspective would lead to costs well below LRIC because, in any time period less than the long-run, the majority of the incumbents' capital assets remain fixed and sunk, and the incremental costs of providing services over those assets is near zero when, as appears likely for the foreseeable future, capacity exceeds demand. Rather than value those sunk assets at levels which reflect the low opportunity cost of these assets in the short and intermediate run, the incumbents ask that their existing sunk investment be valued as if it were all being purchased anew. Further, to compound the inconsistency, they assume that the entire inventory of sunk assets is purchased at unit costs that include the price premiums charged by equipment vendors for piecemeal expansion. This misbegotten hybrid is neither a short-run nor a long-run measure of cost. Willig Decl. ¶¶ 49-50, 65; Klick Decl. ¶¶ 41-44.

The flaws in this approach are well illustrated by applying it to estimate the "cost" of local switching capacity. Generally speaking, the unit cost of switching capacity has been much lower when purchased as part of a new switch than when subsequently purchased as an add-on increment to the capacity of an existing switch. Under the incumbents' pseudo-short-run approach to costing, they seek to determine the "mix" of switch capacity that they will purchase over the next few years. Because they already have in place switches to serve their existing demand, their "forward-looking" purchases account for only a small fraction of their overall capacity requirements. Further, most of their "actual" purchases will be of piecemeal, add-on switching capacity, and very little will be capacity that is purchased "new" as part of an initial switch purchase. The incumbents then apply the ratio of the new/add-on capacity to derive the costs of the capacity necessary to serve their *overall* demand, regardless of whether or not their existing switch capacity was purchased new or as an add-on. Willig Decl. ¶ 66.

The incumbents are simultaneously seeking to force CLECs to pay for switching capacity at the higher unit costs of piecemeal growth equipment—equipment that is economically rational

only because of the sunk nature of existing switching investment—yet seek to treat the entirety of that sunk investment as an incremental expense. To compound the inconsistency, the incumbents would also value the sunk investment at the same unit cost as the piecemeal incremental capacity additions. This is economic gobbledygook. Willig Decl. ¶ 67.

To be sure, the inherent inconsistency in the ILECs' approach can be eliminated by valuing at their replacement cost both the short-run additions to capacity and the ILECs investments that would remain fixed over the proposed "short-run" planning horizon. Here, the replacement costs would be the cost that would have to be incurred to duplicate the product-producing functionality of these investments. "But this, of course, is TELRIC." Ordover Essay at 15. The economic cost to duplicate this functionality is based on the cost entailed in acquiring the cheapest, most efficient plant currently available that is capable of providing these services. Thus, if any "actual cost" concept is to have a sound economic basis and the ability to capture all fixed and variable costs associated with the provision of UNEs, this cost concept ultimately reduces to TELRIC.

Even apart from its theoretical failings, the "reproduction plus" approach would increase, not decrease, the subjectivity and arbitrariness of UNE rate litigation, and the informational advantages possessed by the incumbent LECs. Willig Decl. ¶¶ 16, 72; *cf. Notice* ¶¶ 60-61. All of the information related to the short-run planning horizon would come from proprietary ILEC documents that would be difficult to verify and subject to gamesmanship and abuses.

A shorter-run time horizon would also increase rate volatility. Short-run investment and expenditure plans of the RBOCs are heavily influenced by quarterly and annual budget and earnings exigencies. For example, short-run fluctuations in national economic activity and telecommunications demand caused the RBOCs to cut back their annual capital expenditures by

some $10 billion between 2000 and 2002.[15] Conversely, should demand for a network element exceed short-run capacity, the short-run incremental cost of the element (including the opportunity costs of congestion and queuing) could skyrocket. Estimating these costs would require complex engineering and econometric analyses. Even assuming that the necessary data were available, the results would be stale long before the studies were completed, the rate case was tried, and the state commission issued its decision. The resulting price volatility would create a massive deterrent to competitive entry.

In short, nothing has changed since 1996. It remains the case that there is no viable substitute to the LRIC framework embodied in the existing TELRIC rules.

B. There Is No Legitimate Basis For Any "Presumption" That The Incumbents' Book Costs And Current Practices Are Equivalent To Long-Run Forward-Looking Costs and Practices.

In the alternative, the Bells propose that, if the LRIC framework is retained, the Commission should establish presumptions—or even dispositive rulings—that the Bells' existing network designs and practices are the best proxies for efficient long run forward-looking designs and practices. These arguments fail for numerous reasons.

The Bells have largely abandoned their contention that UNE rates should be set on the basis of embedded book costs. As the *Notice* recognizes, the defects with that system have been well documented. *Notice* ¶ 32. Historic cost ratemaking necessarily requires arbitrary accounting allocations. It also would give ILECs strong incentives to shift costs from unregulated services to regulated services. And most fundamentally, "it is forward-looking

[15] *See generally Ex Parte* Letter from Joan Marsh to Marlene Dortch, CC Docket No. 01-338, Oct. 23, 2002; M. Pfau, *Correcting the RBOCs' Empirical Analyses of the Linkage between UNE-P and Investment* at 20 ("Pfau Empirical Correction"); *Competition and Bell Company Investment in Telecommunications Plant: The Effects of UNE-P,* Phoenix Center Policy Bulletin No. 5 ("Phoenix Center Policy Bulletin No. 5") at 8 & n. 18; *cf.* R. O. Beil, G. S. Ford, and J. D. Jackson, *On the Relationship between Telecommunications Investment and Economic Growth in the United States* (June 2003) (www.telepolicy.com).

costs, not historical costs, that are relevant in setting prices in competitive markets." *Notice* ¶ 32; *see also* Baumol Essay at 5-8. For these reasons, economists have characterized such "fully allocated cost" pricing as "manifestly irrational, if not idiotic." Alfred Kahn, *Application of Economics to an Imperfect World*, 69 Amer. Econ. Review: Papers & Proceedings 1, 12 (May 1979); *see also* Alfred Kahn, I *Economics of Regulation* 151-55 (1988).

Nonetheless, the *Notice* asks whether the Commission should "presum[e]" UNE rates should be based on existing network "practices." *Notice* ¶ 58. Under this approach, while accounting costs would not be used to set UNE rates, the ILECs' existing network design would be used for determining the costs of UNEs. The *Notice* recognizes, of course, that this is effectively a "reproduction cost" standard that would require CLECs to "compensate incumbent LECs for past inefficiencies." *Id.* The *Notice* inquires, however, whether the Commission could be confident that the level of these "past inefficiencies" is minimal because of the advent of "price cap" regulation and, therefore, that existing network design and practices can serve as an adequate proxy for an efficient, forward-looking network. *Id.*

The Commission could not rationally do so. Although price cap regulation may ameliorate somewhat the strong incentive to pad rate bases that existed under traditional rate-of-return regulation, price cap regulation still does not provide incumbents with the same incentives to deploy an efficient network as a carrier subject to effective competition. Willig Decl. ¶¶ 51-58; Klick Decl. ¶¶ 19-28. The repercussions from sub-optimal network design are quite different for a price-capped monopolist than for firms operating in a competitive or contestable market. ILECs operating under price cap regulation do not face the prospect of actually losing significant portions of their demand if they fail to achieve the lowest possible network costs, whereas this is exactly what will happen to a carrier operating in fully competitive/contestable markets. Indeed,

a carrier in a competitive/contestable market that fails to achieve the lowest possible network costs faces the possibility of extinction.

Nor does price cap regulation give ILECs the same incentives to innovate with respect to network design and operation as competition. In dynamic, competitive markets, the failure of a firm to deploy a better network can have catastrophic results. Under price caps, failure to innovate may have little impact on the profits that an incumbent earns because there is usually little, if any, competition for price-capped services. Willig ¶ 54.

Thus, even "perfect" price caps are no substitute for competition when it comes to efficient network design and operation. But it is also the case that "real world" price cap regulation is far from perfect and does not break the link between a carrier's costs and the rates it charges. As a result, "price caps do not eliminate gamesmanship." *Verizon*, 535 U.S. at 487. As Mr. Selwyn explains (¶ 12), in practice, price cap regulation is effectively only a modified form of rate-of-return regulation. The "index" used to adjust rates is always subject to change by the regulator, and the typical basis for altering the index is the company's costs. For example, price-capped carriers understand that if they cut network costs "too much" (and therefore achieve a substantial increase in profits), they risk the imposition of more substantial productivity "x-factors" or "sharing" requirements that could lead to lower profits in the future. *See generally* Awerbach, Hyman and Vesey, *Unlocking the Benefits of Restructuring: A Blueprint for Transmission* (November 1999) ("Pure price caps allow the regulated firm to retain all the fruits of its success within the constraints of the price level and the period of the price cap. This benefit of price-caps, however, also contains the seeds of its problems. [If the price capped carrier becomes] highly profitable, regulators find themselves politically vulnerable by having 'allowed' excess profits. They then may feel compelled to re-open the price cap issue before the end of the regulatory review period or to reduce prices at the end of that period"). Likewise,

under price cap regulation, a firm will have incentives to "waste so as to convince the regulator to allow a higher cap." Kenneth Train, *Optimal Regulation* 327 (1991). By deploying excess spare capacity, for example, the incumbent provides itself with a powerful argument to seek adjustments to the index that would allow the incumbent to increase its rates. *See, e.g.,* Selwyn Decl. ¶¶ 12-28.

To the extent that Commission would adopt the *Notice*'s suggestion to set UNE rates based on existing network design, that would expressly re-establish a direct link between the costs an ILEC incurs and that rates that it charges that would give the ILEC powerful incentives to engage in inefficient "practices" simply to drive up UNE rates and thereby evade competition. Willig Decl. ¶ 58. For example, to the extent that "existing" fill factors are taken as dispositive (regardless of efficiency), an incumbent would then have an incentive to over-invest in capacity. By maintaining excess capacity, the ILEC is not only credibly deterring new entry, but is potentially able to price squeeze competitors by inflating UNE rates to a level that precludes competition.

Finally, even putting these considerations aside and assuming counterfactually that price cap regulation perfectly replicates the dynamics of competitive markets, ILEC practices with regard to technology, equipment, and design are heavily influenced by prior, sunk investment. Willig Decl. ¶¶ 56-57; Riolo Decl. ¶¶ 15-16. Much of the incumbents' outside plant was deployed during the period of rate-of-return regulation. Once excess network capacity is installed—and rate-of-return regulation provided strong incentives for the ILECs to deploy excess capacity—it makes no sense to eliminate the excess capacity as the going-forward costs of carrying excess capacity are negligible compared to the costs of removing it. Willig Decl. ¶ 56. In areas where demand has been relatively flat or declining, that excess capacity will

persist permanently. Similarly, ILECs have not infrequently deployed capacity in anticipation of demand that never materializes. Riolo Decl. ¶ 38.

Likewise, the incumbents typically deploy outside plant to serve a particular area, and then incrementally deploy additional outside plant to serve incremental demand (including shifts in population distribution). But the routes that would be used and the cables that would be employed to serve current demand most efficiently will not necessarily be the same routes and cables used in the piecemeal expansion. Klick Decl. ¶¶ 27-28. This is particularly true because of technological advancements that allow carriers to serve more customers with fewer facilities. *Id*. ¶¶ 71-73; Riolo Decl. ¶¶ 82, 134-38.

For example, an ILEC may initially install a cable of a certain size and then subsequently add another cable as demand increases. However, the most efficient arrangement would be to deploy a single cable capable of satisfying existing demand because the per-unit costs of a larger cable is lower than the per-unit cost of two smaller cables. Likewise, when an ILEC initially deploys facilities to a particular geographic area, it attempts to minimize the costs of serving that demand given the existing location of customers. However, as the new buildings are constructed the geographical mix of the demand will shift over time. The ILEC will then seek to serve new locations by incrementally expanding its existing network—but in many instances the costs of serving current demand would be lower if the ILEC had the freedom to change the placement of its feeder and distribution cables.

Similarly, because of the sunk nature of outside plant, ILEC networks cannot be expected to have incorporated current "best practices" that minimize spare capacity. For example, as Mr. Riolo explains in greater detail, ILECs use new planning tools that allow them to now serve a certain level of demand with fewer facilities than under prior design standards. Riolo Decl. ¶¶ 40-42. Yet the ILECs continue to provide service over facilities placed under the prior

standard because it is cheaper to leave those (excess) facilities in place rather than rip out and re-deploy outside plant using the new planning techniques. Legacy incumbent networks also reflect substantial usage of older, less efficient equipment instead of newer GR-303 compatible DLC equipment, which is much more efficient. *Id.* ¶¶ 44-45. Again, because the investment in the less efficient DLC equipment is sunk, retaining the older equipment is less costly overall than updating it immediately.

These problems are even more severe now that the Commission has eliminated access to certain "broadband" capabilities of many UNEs. *See infra* Part IV. To whatever extent ILECs are seeking to design and operate networks that are optimally efficient, it is their "actual" networks capable of deploying both voice and broadband services that they are seeking to optimize. For example, a "broadband-capable" network will ordinarily include more extensive deployment of fiber in the loop plant to support existing and planned data services. Riolo Decl. ¶¶ 47-49. Although this architecture may minimize the overall costs of deploying voice and data, it is not intended to minimize the costs of voice services. In addition, to the extent that the ILECs are sizing their network in anticipation of offering new types of data services, the existing network clearly includes far more capacity than is necessary to provide the UNEs that CLECs are permitted to purchase. Indeed, the Bells are now "overlaying" many previous copper routes with fiber adequate to serve all of the demand on the route. Murray Essay at 18-19.

IV. THE COMMISSION SHOULD CLARIFY ITS TELRIC RULES TO ENSURE THAT UNE RATES DO NOT SUBSIDIZE ILECS FOR NETWORK CAPABILITIES THAT THE *TRIENNIAL REVIEW ORDER* DENIES TO UNE PURCHASERS.

It is a bedrock principle of ratemaking that charges for regulated services should include only those costs properly attributable to the provision of the regulated services. Because the network elements that were ordered unbundled by the FCC in 1996 "correspond[ed], to a great extent, to discrete network facilities," *Local Competition Order* ¶ 695, application of the TELRIC rules engendered few of the complexities that typically arise in estimating costs for individual services provided over multi-service facilities. Unfortunately, that will no longer be the case in the wake of the *Triennial Review Order*. There, the Commission decided to cut back dramatically the scope of the incumbents' unbundling obligations, by defining some network elements not as discrete physical facilities, but as the right to use only a subset of the capabilities of those facilities and thereby precluding CLECs from providing the full range of services those multi-service facilities can deliver. The Commission must now clarify application of its TELRIC rules to ensure (i) that CLECs are not forced to pay for network facilities and capabilities that they are not able to purchase, and (ii) that ILECs do not receive windfalls and double recovery.

First, the Commission eliminated access to several of the "discrete network facilities" that it had unbundled in the *Local Competition Order* (and the *UNE Remand Order*). For example, competitive LECs can no longer obtain access to packet data transport or routing, call-related databases, and "entrance" facilities. Similarly, depending on the outcome of the state commission proceedings mandated by the *Triennial Review Order*, competitive LECs may, in certain areas, lose unbundled access to switching, loops and transport. Thus, to remove any potential that state commissions would require competitive carriers to cross-subsidize the deployment of such facilities, the Commission should clarify that TELRIC cost models cannot

include any of the costs of discrete network facilities that are no longer available as UNEs—including overhead costs allocated to these facilities.

Second, and more problematically, the Commission eliminated unbundled access to some of the *capabilities* of discrete network facilities. Most notably, the Commission eliminated unbundled access to certain of the "broadband" capabilities of hybrid fiber-copper loops (and also limited the bandwidth available to purchasers of high-capacity loop and transport UNEs). *Triennial Review Order* ¶¶ 273, 288-89, 315, 324, 388-89. In the wake of these changes, the Commission must take steps to ensure that competitive LECs bear only the costs properly attributable to the capabilities of the facilities that they may actually use, and not costs that are attributable to capabilities to which competitive LECs are denied access.

The Commission faced comparable allocation issues in the context of the provision of video services by incumbent LECs. *See Video Service Cost Allocation*. There, the Commission aptly observed:

> Economists have addressed these issues by defining the terms incremental and stand-alone costs. Economists would say that in order to give incumbent local exchange carriers the proper incentives to build multi-product service facilities, where such facilities are economically rational, the cost allocated to each individual service or subset of services should be less than the stand-alone cost but greater than the incremental cost. Stand alone costs represent the total cost of constructing facilities dedicated to a specific group of services, while incremental costs represent the additional cost that must be incurred in order to provide a group of services where facilities are in place to provide other services. These are the upper and lower bounds within which costs allocated to regulated and nonregulated services should fall.

Id. 20.[16] The difference between the incremental cost floor and the SAC ceiling represents the costs that are shared between narrowband and broadband capabilities.

[16] Although the Commission's rulemaking concerned the allocation of the costs that are used to determine retail rates to end users, *see id.* ¶¶ 9-15, the logic of this analysis applies with full force in the context of rates for UNEs, which are used to provide retail offerings.

The *Local Competition Order* provided state commissions with guidance about how such shared costs should be attributed to various elements. The Commission should, in the clearest possible terms, reaffirm that the same principles must be applied to the cost allocation problems created by the unbundling limitations of the *Triennial Review Order*. Foremost, the Commission stated that any allocation must be "consistent with the pro-competitive goals of the 1996 Act." *Local Competition Order* ¶ 696. Thus, the Commission expressly endorsed rules that "allocate only a realtively small share of common costs to certain critical network elements." *Id.* ¶ 696. Likewise, the Commission forbade use of "Ramsey pricing" because "such an allocation could unreasonably limit the extent of entry into local exchange markets by allocating more costs to, and thus raising the prices of, the most critical bottleneck inputs." Finally, "[g]iven the likely asymmetry of information regarding network costs . . . . incumbent LECs shall have the burden to prove the specific nature and magnitude of these forward-looking common costs." *Id.* ¶ 695.

The need for such pro-competitive rules is particularly pressing because of the extent to which costs are shared in common by voice grade, DSn and DSL-capable hybrid fiber-copper loops. Riolo Decl. ¶¶ 111-20. Thus, if state commissions were to keep loop rates at current levels, CLECs would be required to subsidize broadband capabilities to which they are denied access. Further, demand for high-capacity services is growing at rates far in excess of growth in demand for voice-grade services. Thus, one would anticipate that the forward-looking costs for "narrowband" loops would reflect a declining proportion of the common costs of an integrated network. Klick Decl. ¶ 77.

V. APPLYING THE TELRIC RULES—SPECIFIC ASSUMPTIONS AND INPUTS.

A. Network Assumptions

1. Network Routing and Construction

The *Notice* seeks comments about what states should "assume about how a network will be routed and what construction techniques will be used in building it." *Notice* ¶ 63. An efficient carrier, of course, will choose the least-cost routes and construction techniques. A carrier given the choice between digging up sidewalks and placing new conduit or using existing conduit, will use existing conduit. Where a carrier has a choice between digging up roads or burying cable under dirt, an efficient carrier will choose to bury it under dirt. And where a carrier has the choice of placing cable on its own, or sharing placement costs with other utilities, carriers or developers, an efficient carrier will choose to share the cost.

An efficient entrant seeking to serve all demand plainly would not reproduce the incumbent's "existing switch locations," "feeder routes," and/or "remote terminal locations" without regard to less costly network designs. *Notice* ¶ 64. As the Commission has recognized, the incumbent's network may "not represent the least-cost, most-efficient design," *USF Platform Order* ¶ 66, given its piecemeal deployment and use of decades old engineering designs. Indeed, requiring (or even presuming) use of existing ILEC network routes and configurations would be tantamount to adopting the discredited "reproduction" cost standard and would inflate UNE rates to such high levels that competitive entry would effectively be blocked. Willig Decl. ¶ 15, 68.

There are other problems with using "actual" ILEC network routing and construction practices. As explained above, the ILECs have not maintained records of their outside plant that are sufficiently accurate and complete to enable a state commission to "model" the forward-looking costs of the ILECs' "actual" network. Further, as the Commission recognizes, "an approach that relies more heavily on information regarding the incumbent's existing network or

planned upgrades could give the incumbent a significant advantage in a rate proceeding." *Notice* ¶ 60. Indeed, the experience with the state UNE rate proceedings demonstrates that when the ILECs presented cost studies that allegedly relied upon the "actual" characteristics of their networks "it took months of discovery—often repeated in state after state—to determine that these 'actual' data were not actual at all." Klick Decl. ¶ 51.

Of course, modern TELRIC cost studies should not assume away the myriad endogenous constraints of placing a network. They should not, for example, produce cost estimates that could only be achieved if cables could be routed through lakes and over mountains in ways that are not achievable (or desirable) in the real world.. And modern TELRIC cost studies do *not* in fact make such assumptions. *See generally* Bryant Essay; Klick Decl. ¶¶ 45-74. On the contrary, when determining the least-cost most efficient cable routes, modern TELRIC cost models account for the cost effects of varied terrain and natural and man-made obstacles. The HAI Model for example, determines the placement method—aerial, underground or buried—based on myriad factors, including zoning rules, topography and existing best engineering practices. The HAI model also accounts for the type of terrain, by recognizing that digging up roads or boring through concrete is costlier than hanging cable on telephone poles or burying it in dirt.

Indeed, modern TELRIC cost models incorporate an impressive degree of granular detail. Modern TELRIC models, for example, actually account for *local* soil conditions and water table information when determining the routes and costs of an efficient network. Bryant Essay at 12. The cost models even account for differences in climate. *Id*. "[I]f aerial cable is especially expensive to maintain in areas subject to hurricanes, such as Florida, this higher expense will be reflected in the model's cost calculations." *Id.* And of course, modern TELRIC models account

for state-by-state and locality-by-locality variations in, among other things, population density, terrain, labor costs, material costs. Klick Decl. ¶¶ 45-74.

Further, as accurate geocoded data on customer locations and customer services have become available, these data have been successfully incorporated into the current generation of computerized forward-looking cost models. Klick Decl. ¶¶ 47-53. This in turn ensures that the cost models are assuming that cable is being placed where it is appropriate to do so as "customers will not be located where there are natural features such as lakes or mountains that prevent building." Bryant Essay at 12.

Modern TELRIC models do not, of course, account for every conceivable detail – no cost model or accounting system could do that, at least not at any reasonable cost. But where abstractions are required, modern TELRIC models do so in a way that is conservative. For example, to determine how much telephone cable must be placed by an efficient carrier, it is necessary to know roughly how cable will be routed. Because it is not possible to model every single natural and man-made feature in atomistic detail, modern cost models automatically build in extra cable that would be necessary for routing around obstacles. For example, most TELRIC models use a "right angle" algorithm, which assumes that cable connecting homes and switches will travel straight and will turn only at right angles – just as most urban streets do. Klick Decl. ¶ 57. Although this is an abstraction, it produces reliable cable length estimates, and its overall effect is to overstate the amount of cable, because in the "real world" cable does not travel only rectilinearly. *Id.* Other cost models (such as the BSTLM) engineer cables routes that are assumed explicitly to following existing roads. Klick Decl. ¶ 49. Although this potentially provides a more accurate assessment of the paths that cable would actually follow in the "real world," it does not change appreciably the level of TELRIC costs from those that are calculated using rectilinear routing. Klick Decl. ¶ 46.

The Commission should recognize that the exact routes, construction methods and costs of deploying a network may vary substantially from state to state. Bryant Essay at 12. Some states are mountainous, and require placing cable in rock; some states are rural and cable can be placed under dirt; and some states are very urban, requiring substantial amounts of aerial and underground cable placement. Likewise, the opportunities to share cable placement costs with utilities, developers and other telephone carriers vary from state to state. Accordingly, states generally are in the best position to assess whether the cable placement assumptions of particular TELRIC cost models appropriately reflect that states' terrain and topography.

2. Line Counts

In the *Triennial Review Order*, the Commission ruled that ILECs are not required to provide unbundled access to OCn loops under any circumstances, and the Commission limited an ILEC's unbundling obligation with respect to DS-3 loops to two DS-3's per requesting carrier to any single customer location. *Triennial Review Order* ¶¶ 201-202, 314, 315-319, 321, 324. The Commission further held that ILECs will not be required to provide CLECs with unbundled access to certain high-capacity loops (dark fiber loops, DS-1 loops, and DS-3 loops) in those areas where the state commission finds that CLECs are not impaired without access to such loops. *Id.* ¶ 335.

Regardless of whether an ILEC has an obligation to provide these loops to CLECs, it is critical that all such loops be included in the calculation of rates for loops that are available as UNEs, so that forward-looking costs can be accurately calculated, and the costs of shared facilities can be properly assigned among loops that are available to CLECs and those that are not. Willig Decl. ¶¶ 90-93. Such calculations, however, are possible only if the Commission requires ILECs to provide complete line counts, by loop type, by technology and by central office. Riolo Decl. ¶¶ 111-33; Klick Decl. ¶ 80.

The evidence clearly shows that in the ILECs' networks, high-capacity and special access services using DS-1, DS-3, and OCn loops share a substantial number of facilities with the POTS service provided through two-wire voice grade loops. Riolo Decl. ¶ 111-17. For example, high-capacity and two-wire analog loops share central offices and the land on which those offices are physically located. Generally, any loop—whether high-capacity or two-wire analog—follows the same path from the central office, using the same poles, conduits, trenches and manholes—and may even share the same fiber sheath. Similarly, the feeder portion of the network is shared by all loops, regardless of loop type. High-capacity loops often share the same fiber sheath, and in feeder segments, may even be provisioned over the same fibers, as two-wire analog loops (via DLC). *Id.* ¶ 113-16. [17]

As the *Virginia Arbitration Order* recently concluded, "[b]ecause two-wire loops and higher capacity loops share network facilities, the correct network approach is to assign to DS-0 loops their directly attributable costs plus a share of the joint facilities providing DS-0 loops and high-capacity loops." *Virginia Arbitration Order* ¶ 212. Absent such an attribution, the forward-looking costs of loop rates would be overstated, because they would fail to reflect the economies of scope and scale that are achieved by the sharing of facilities. Riolo Decl. ¶ 133.

However, a reliable assignment of shared costs—and a proper calculation of the overall forward-looking costs of an integrated network—are possible *only* if the actual number of lines of each type of loop technology or service in the ILEC's network, including the number of each type of high-capacity loop, can be determined. That information is exclusively in the possession of the ILECs, which do not regularly report such data or otherwise make it publicly available.

[17] Moreover, in the ILEC's distribution plant high-capacity loops and two-wire analog loops often share the same route and same structure. *Id.* In addition to sharing the same path from the central office, high capacity loops often use the same copper and fiber facilities (and DLCs) as two-wire analog loops.

For example, the ARMIS reports filed by ILECs do not identify the number of each type of high-capacity loop in the ILECs' network. Riolo Decl. ¶ 128; Klick Decl. ¶ 80. Furthermore, in a number of State UNE rate proceedings (including the *Virginia Arbitration* proceeding), ILECs have refused to provide such data in response to discovery requests by CLECs. Riolo Decl. ¶ 129. Yet the provision of such data would not be burdensome for the ILECs, as evidenced by the recent willingness of Qwest and Verizon to provide it in UNE rate proceedings in four states. Riolo Decl. ¶ 130 & Att. C-D. *See also* Klick Decl. ¶ 82.

The ILECs' exclusive possession of line count data, and the carriers' refusal to provide such data to CLECs in a number of UNE rate proceedings, and the importance of ensuring that UNE rates fully reflect the economies of scope and scale achieved by the sharing of facilities between two-wire analog and high-capacity loops warrant the issuance of a Commission rule that the ILECs must produce such data. *See Notice* ¶ 61 (seeking comment on requiring ILECs to provide information to improve accuracy of TELRIC calculations). Any burdens from the production of such data are outweighed by their importance in properly calculating forward-looking costs. Thus, as part of its efforts to make the TELRIC calculation more accurate, the Commission should require that the ILECs produce such data to CLECs (either in UNE rate proceeding before state commissions or in ARMIS reports), by loop type and by wire center, both for the current time period and for a reasonable historical period, along with any forecasts of demand for these services. Riolo Decl. ¶ 132; Klick Decl. ¶ 82.

B. Loop Cost Inputs

1. Fill Factors

One of the most contentious debates in UNE pricing involves the amount of spare capacity needed for current and future demand—and the share of that spare capacity that should be charged to current ratepayers. The Bells have claimed that the appropriate utilization

percentage (or "fill factor") for their networks—especially the distribution portion of their local loop plant—is as low as 30 or 40 percent. In fact, appropriate fill factors are much higher for estimating forward-looking costs that will be used to set UNE rates for current UNE purchasers. Riolo Decl. ¶¶ 53-75; Willig Decl. ¶ 89; Murray Essay at 18-20.

Customer Churn And Defective Cables Justify Only Limited Spare Capacity. The Bells argue that the need to "buffer" random fluctuations in demand and capacity—i.e., "churn," or turnover in residential customers and random defects in cable and other outside plant—justifies large amounts of spare capacity. This claim is unfounded. Riolo Decl. ¶¶ 20-27; Murray Essay at 5-7.

Accommodating churn requires little spare capacity. A large portion of churn is "self-canceling"—i.e., involves customer moves between two locations that are served by the same distribution terminal or central office. Murray Essay at 6. Other churn is simply turnover—the replacement of one tenant by another in the same apartment unit—and causes no change in demand for telephone capacity. Moreover, even when a location is vacated between occupants, the line remains active for limited service (e.g., for service ordering or 911) as a cut-through line. Riolo Decl. ¶ 21; Murray Essay at 6. Likewise, churn in central business districts has little effect on line demand: loop facilities are generally highly fungible, or consist largely of intrabuilding wire that is owned by the building owner, not the local telephone carrier. Riolo Decl. ¶ 21; Murray Essay at 6. Finally, the one source of churn that in theory could cause short-term random fluctuations in total line demand—the ordering of additional residential telephone lines at existing locations—is diminishing as customers rely increasingly on a single line for multiple services (*e.g.*, for telephone and broadband services). Riolo Decl. ¶¶ 22-24; Murray Essay at 6.

The amount of spare capacity required in a forward-looking network to account for defective plant also is very low. Copper cable and other kinds of outside plant equipment

offered by manufacturers today have failure rates close to zero. And the higher failure rates of existing outside plant—much of it decades old, fully depreciated, or suffering from years of deferred maintenance—are irrelevant. An efficient new entrant would not build a plant with such a high rate of defects; and a contestable market would not allow an incumbent to recover the costs of such a high rate of defects from ratepayers. Hence, forward-looking UNE rates should not compensate the ILECs for these inefficiencies. Riolo Decl. ¶¶ 25-27; Willig Decl. ¶ 88; Murray Essay at 7-8.

"Breakage" Is a Significant Source of Spare Capacity. "Breakage" (sometimes called modularity spare) occurs because a modern telecommunications network requires "lumpy" investments. Copper cable, for example, is typically manufactured in only a limited selection of sizes—typically 6, 12, 25, 50, 100, 200, 400, 600, 900, 1200, 1800, 2400, 3000, 3600 and 4200 pairs. For this reason, it is usually impossible to supply a cable route with the precise number of pairs needed; instead, the carrier must use the next larger available size. For example, wiring a distribution route with 30 loops would require a 50-pair cable, resulting in a fill rate of 60 percent (30 divided by 50).[18] Similarly, the smallest available single cable with sufficient capacity to serve a 57-loop route is a 100-pair cable, resulting in a fill rate of 57 percent (57/100). The difference between the capacity needed to meet a specific level of demand, and the capacity of the smallest equipment that can meet that demand, is called "breakage." Riolo Decl. ¶¶ 28-29; Murray Essay at 8-11.

The spare capacity built into most models for "breakage" may often be sufficient for *all* buffer needs from churn and defective cables. Riolo Decl. ¶¶ 30; Murray Essay at 10-11. Unfortunately, the cable sizing factors used in UNE cost models exaggerate the achieved

[18] The alternative of provisioning the route with *two* cables—a six-pair cable and a 25-pair cable—would be even more costly. The extra cost of double sheaths and installation work would outweigh the reduced number of copper strands.

network fill because they gross up the amount of capacity needed to meet demand itself by the additional capacity purportedly needed to offset customer churn and defective pairs without accounting for the breakage that additionally results. Riolo Decl. ¶ 30; Murray Essay at 15-17.

The Costs of Capacity For Future Growth In Demand Should Not Be Recovered From Current Ratepayers. An efficient carrier is likely to carry a certain amount of currently unneeded capacity to meet anticipated future growth in demand. The costs of this "growth" capacity, however, are not attributable to current demand and should not be recovered from current ratepayers. Willig Decl. ¶¶ 87-89; Riolo Decl. ¶¶ 31-35; Murray Essay at 11-15.

The amount of spare capacity that an efficient carrier would deploy to accommodate future growth will depend on (1) the costs of carrying the spare capacity, (2) the extra costs of later piecemeal expansion that the earlier deployment of extra spare capacity would avoid; and (3) the risk that the demand may not materialize. Willig Decl. ¶ 83. The optimal amount of spare capacity in any part of the plant depends on the values of these factors. One thing is clear, however: it is *never* efficient to deploy spare capacity today unless the risk-adjusted costs of carrying it until needed are less than (a) the expected costs of deferring its acquisition until the added demand actually materializes, and (b) the expected value of the future revenue from the extra capacity. For these reasons, deploying spare capacity in anticipation of future growth should reduce or leave unchanged—but never increase—the costs borne by current ratepayers. *Id*.; Murray Essay at 13-14.

Hence, it would be "clear error to include growth spare [in the cost estimate], but then to estimate unit costs based solely on present demand." Murray Essay at 13. Because current ratepayers neither cause, nor benefit from, spare capacity reserved for growth, they should not be "required either to subsidize the cost of building plant for future customers or to insulate incumbents from the consequences of their [deployment] decisions." *Id*.; *see also* Willig Decl.

¶ 98. Likewise, in a contestable market, charging current ratepayers for capacity used to serve future customers would leave the incumbent vulnerable to entry by a rival that charged present customers for present demand only. *Id*. ¶ 99; *accord Notice* ¶ 75 (asking how competition affects incentives to maintain excess capacity). Further, a firm will not make the right investment decisions unless it bears the risk of recovering the carrying cost of today's spare capacity (reserved for future use) from future customers. Willig Decl. ¶ 88; *see also* Alfred Kahn, 1 *The Economics of Regulation* 121 (1970).

Accordingly, it is unnecessary for the Commission or its state counterparts to quantify the precise carrying costs and future revenues from spare capacity, an inquiry that the Commission has correctly described as "speculative."[19] Rather, fill factors should be set by determining the appropriate amount of spare capacity needed to meet current demand alone. As the Commission has found, "if we were to calculate the cost of a network that would serve all potential customers, it would not be consistent to calculate the cost per line by using current customer demand. In other words, it would not be consistent to estimate the cost per line by dividing the total cost of serving all potential customers by the number of lines currently served." *Universal Service Tenth Order* ¶ 58. *Accord*, *Local Competition Order* ¶ 682 (directing that fill factors reflect "the total cost of the element" divided by a "reasonable *projection* of the actual total usage of the element"). "Just as the Commission found it inappropriate to include in universal service support the costs of building outside plant to meet uncertain ten- or twenty-year demand projections, it is inappropriate for [the CLECs] to bear the cost today of building plant for uncertain ultimate demand."[20] Similarly, state commissions have rejected the proposed fill factors of incumbents that are based on ultimate demand, finding that "[u]ltimate design theory is

[19] *Notice* ¶ 73 (footnote omitted).

[20] *Virginia Arbitration Order* ¶ 254.

an inefficient approach that fails to consider changes and improvements that affect the network today."[21] Indeed, an analysis limited to current demand and current capacity costs is conservatively high, for it excludes the potential savings to current ratepayers from building extra capacity today in anticipation of future demand. Murray Essay at 13.[22]

Finally, even if (contrary to fact) capacity for future growth could somehow be properly attributed to current ratepayers, the magnitude of growth in demand for lines available as UNEs is likely to near zero, or even negative, for the foreseeable future. Growth in traditional circuit-switched lines has been slowing in recent years. The capability of offering voice and data services over a single line has decreased demand for second lines. Additional technologies that allow broadband connections with multiple voice lines over copper lines will further fuel that trend. But under the Commission's *Triennial Review Order*, these growth technologies are unavailable as UNEs. Facilities-based alternatives, such as cable telephony, may also decrease demand for copper lines. Moreover, ILECs are increasingly planning to use fiber (or wireless) broadband technologies to meet future demand, rather than additional copper loops. Under these circumstances, the amount of growth capacity—especially for UNEs—must be discounted greatly. Murray Essay at 14-15.

Existing Fill Factors Are Irrelevant. The incumbent's existing fill factors are irrelevant to an appropriate analysis of forward-looking fill factors. *Cf. Notice* ¶ 74. The FCC's Wireline

[21] *New Jersey UNE Order* at 84. *See also Maryland UNE Order* at 51 (rejecting Verizon's argument that its "forward-looking network should be constructed to meet ultimate demand"); *Arizona UNE Order* at 17 (rejecting Qwest's proposed fill factors that were based on ultimate demand).

[22] This approach also leads to appropriate incentives, because it allows the ILEC—which has far better information than the regulator—to make the complex and dynamic calculation as to how much future capacity is really necessary. If the ILEC believes that deploying growth capacity is warranted, then it can achieve lower per-unit costs relative to the UNE loop rates, and reap the benefits of doing so. *See* Murray Essay at 14.

Competition Bureau rejected the use of embedded utilization values in its *Virginia Arbitration Order*,[23] and correctly so. There is no reason to assume that the incumbents' actual achieved fill factors approximate the utilization rates that an efficient carrier would achieve in the long run. The incumbents' embedded fills necessarily reflect past practices of building excess loop capacity in their networks—fills that are lower than those that would exist in an efficient, forward-looking network. Riolo Decl. ¶¶ 36-52; Willig Decl. ¶¶ 84-85; Murray Essay at 18.

First, rate of return regulation gave incumbents strong incentives to build excessively large amounts of spare capacity in their networks, because doing so allowed the carriers to earn ratepayer-funded returns on spare capacity. Moreover, as noted in Part III.B, *supra*, incentive regulation did not eliminate the Bells' incentive to deploy excess capacity, for incentive rate regulation is riddled with exceptions and loopholes, and, even if effective, would not eliminate the strategic value of underutilized sunk plant capacity as a deterrent to competitive entry. Riolo Decl. ¶ 37; Selwyn Decl. ¶¶ 12-28; Murray Essay at 18; *see also Verizon*, 535 U.S. at 487 ("price caps do no not eliminate gamesmanship").

Second, the incumbents' existing networks reflect a century of piecemeal expansion in response to population growth, decline and migration. As a consequence, the embedded networks contain numerous feeder routes and other plant built to accommodate future growth that did not ultimately materialize—routes that would not exist on a reconstructed network, thereby rendering the incumbents' existing fill an overestimate of fill in a forward-looking network. Riolo Decl. ¶ 38.

Third, many distribution areas in central business districts are vastly overbuilt in the wake of the incumbents' attempts to market Centrex-type services to business customers. The marketing effort failed: most business users migrated instead to Private Branch Exchange

[23] *Virginia Arbitration Order* at ¶¶ 246-249.

("PBX") service, which uses as little as one-tenth of the amount of loop capacity used to provide an equivalent Centrex-type service. Murray Essay at 7 & n. 5.

Fourth, large parts of the incumbents' existing patchwork networks were built with engineering techniques and technologies that have since become obsolete. Because the incumbents' networks do not fully incorporate recent technology that permits networks to operate in ways that reduce the need for spare capacity, embedded fill factors bear no relationship to the utilization rates that could be achieved in an efficient, forward-looking network. *See* Riolo Decl. ¶¶ 39-43 (giving examples).

Fifth, the incumbents maintain older, less efficient DLC equipment (such as TR-008 and subscriber line carrier equipment) in their networks even though an efficient carrier would deploy GR-303 compatible DLC equipment, whose ability to concentrate calls greatly reduces feeder capacity requirements and allows higher levels of utilization. In this context, low embedded fills are symptoms of inefficiency, which an efficient forward-looking cost standard does not require ratepayers to underwrite. Riolo Decl. ¶¶ 44-51.

Sixth, existing networks typically include spare capacity acquired to serve future growth, not current ratepayers. As noted above, this spare capacity, whether efficient or not as a matter of engineering, cannot be attributed to current ratepayers as a matter of cost causation or intergenerational equity. *See supra* at 64-65.

Finally, relying on the incumbents' embedded fill factors for computing UNE rates would also give incumbents a further continuing incentive to over-invest in capacity. Willig Decl. ¶ 60. If fill factors are based on incumbents' existing fills, then incumbents could increase competitors' costs, and hence deter UNE-based entry, by over-investing in spare capacity. These perverse incentives would reduce both competition and network efficiency. Mayo Essay at 9-10. The resulting costs would ultimately be borne by end-users.

2. Structure Sharing

Another major issue in the costing of unbundled loops involves "structure sharing"—the extent to which the supplier of unbundled loops is assumed to share of the cost of poles, trenches, and conduit and other support structure with other entities, including other telephone companies, power companies, and cable operators. Because support structure is costly, and its costs do not vary significantly with the number of other companies' cables that share the structure, the cost of an unbundled loop is highly sensitive to the extent of structure sharing assumed in the cost study. Riolo Decl. ¶¶ 76-80.

In arguing for low structure sharing percentages, the Bells make essentially two arguments. First, they contend that structure sharing opportunities would be limited even for a telephone carrier building its network anew. Second, they argue that sharing opportunities theoretically available in the long run are irrelevant for the life of existing network assets, because most of the poles, trenches, ducts and conduits used by telephone companies and other utilities have already been deployed, and it would be inefficient to discard them merely to increase structure sharing. Neither contention is well founded.

An efficient carrier would seek to minimize the costs of its network by seeking to share structure with other entities to the maximum extent feasible. Accordingly, the efficiency assumptions require that UNE pricing models adopt the same assumption. Willig Decl. ¶¶ 90-92.

Opportunities for sharing structure are widespread. For example, power utilities, gas utilities, electric utilities, and other telephone carriers, all of which also provide "lines" to virtually all residential and business customers in a particular geographic area, have substantial incentives of their own to share structure costs.[24] Moreover, in many new developments,

[24] Indeed, it would be indefensible to require adjustments to account for multiple facilities-based providers when their existence increases UNE rates, but ignore such providers when doing so (continued . . .)

building contractors often are willing to place telephone plant at no additional charge in the same underground trenches and conduit used for water, gas and electric lines. And many municipalities today require maximum structure sharing to minimize the disruption caused by the deployment of new structure (*e.g.*, by digging up streets and planting telephone poles). For these reasons, many state commissions have recognized in UNE pricing cases the need to account for the substantial sharing opportunities with other entities that are available to carriers for the purpose of estimating costs. *See* Riolo Decl. ¶¶ 87-107.

The incumbent LEC's sharing opportunities are not limited to sharing with other utilities: the incumbent's regulated UNE plant also shares structure with the same carrier's non-regulated plant, and regulated plant that has been exempted from mandatory unbundling by the *Triennial Review Order*. *See Triennial Review Order* ¶¶ 290-91. Sharing percentages should reflect those sharing opportunities as well; otherwise, incumbents could recover from UNE purchasers a portion of the costs for facilities or capabilities to which CLECs lack any access. Willig Decl. ¶ 93. If the Commission is unable or unwilling to determine on a national basis how to allocate sharing percentages among regulated and non-regulated services, it is critical that the Commission authorize state commissions to make those determinations. *Id.*

That fewer structure sharing opportunities may have been available "at the time the plant was built" is irrelevant to the determination of forward-looking structure sharing percentages. The incumbents' embedded networks were patched together piecemeal over many decades, and determining the date of deployment of each component of outside plant would therefore be virtually impossible. More fundamentally, the advent of new forms of communication and energy transmission have greatly increased opportunities for structure sharing since the

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would reduce UNE rates. *See, e.g., Triennial Review Order* ¶ 680 ("the objective of TELRIC is to establish a price that replicates the price that would exist in a market in which there is facilities-based competition," and clarifying that cost of capital should reflect such risks).

incumbents' plant was deployed. In addition, states, cities, and towns have increasingly adopted codes, ordinances, and regulations that encourage or require structure sharing arrangements. *See* Riolo Decl. ¶¶ 81-86.

These increased sharing opportunities cannot be dismissed on the ground that most existing structure has been built, and that the costs of migrating to shared structure would exceed the savings from the resulting sharing opportunities. In the long run—the time horizon encompassed in TELRIC—all existing assets reach the end of their lives and must be replaced; hence all costs become variable. Hence, sunk investment in existing support structure provides no reason not to exploit all sharing opportunities that would exist if telephone and utility networks were being built anew. Willig Decl. ¶¶ 94-96.

The Bells may very well be correct that many of these sharing opportunities will offer no net savings as long as the existing support structure remains in useful service. This time perspective, however, is a short run perspective. If potential savings from structure sharing are to be evaluated over the short run, however, so must the unshared cost of the structure itself. Because most investment in poles, trenches and ducts is sunk once made, the short-run incremental cost of support structure—whether shared or not—is close to zero. The Commission can adopt a short-run standard or a long-run standard. It cannot, however, sanction a heads-I-win, tails-you-lose standard that allows ILECs to use short-run costing assumptions where they produce higher costs, while adhering to long-run cost assumptions where *they* produce higher costs. Willig Decl. ¶ 97.

Finally, the foregoing analysis should make clear that "actual" (*i.e.*, embedded) sharing percentages are irrelevant to the determination of efficient forward-looking sharing percentages. As noted above, sharing opportunities were fewer in the past, and incumbents and other regulated monopolists had little incentive to identify or take advantage of them: such sharing

would have reduced the underlying rate base on which their rates of return were computed and would have facilitated competitive entry by lowering CLEC operating costs. *Cf.* Willig Decl. ¶ 95; Selwyn Decl. ¶ 18-20. Thus, the degree of sharing in the incumbents' embedded networks merely reflects the sharing decisions induced by traditional public utility rate regulation of a monopoly. Accordingly, the incumbents' actual embedded sharing percentages substantially understate the amount of sharing that will exist in a forward-looking network. *See* Riolo Decl. ¶¶ 81-86.

Moreover, reliance on embedded sharing percentages would send improper cost signals to the incumbents, and thus could result in inefficient investment decisions going forward. Willig Decl. ¶ 95. If incumbents were permitted to recover costs based on assumptions that the incumbent engages in very little structure sharing, the incumbent would have less incentive to maximize sharing opportunities in the future. *Id*.

C. Switching Costs

1. Switch Investment

The Commission seeks comment on the appropriate method for computing switch costs. *Notice* ¶¶ 76-81. As explained more fully in the Murray/Pitts and Willig Declarations, the Commission should adopt the "life-cycle" methodology to estimate long run economic costs of switching. In other words, the forward-looking cost of switching capacity would reflect both the purchase price of new switches capable of serving all current and some additional demand, plus the present value of any growth equipment that an efficient carrier would expect to add to allow the switch to serve additional demand over the life of the switch. This approach yields the appropriate mix of new and growth equipment in calculating the forward-looking cost of the incumbent's switching, and thus yields the appropriate switch costs. The Wireline Competition

Order used a very similar approach in calculating switch costs in the *Virginia Arbitration Order* ¶¶ 401-16.

The life cycle methodology works as follows. First, any cost determination must begin with the *incumbent's* switching costs. Incumbents purchase a large quantity of switches and therefore receive deep discounts from manufacturers' "list prices." Indeed, incumbents have a certain level of monopsony power vis-à-vis switch vendors, and those discounts should be passed along to CLECs in UNE rates. Incumbents generally refuse to provide such information in state proceedings, however, and therefore the Commission's rules should require incumbents to provide switch price information for all new and growth switches over the last five years (or otherwise the most recent purchases) when switching costs are at issue in state cost proceedings. *See* Murray/Pitts Decl. ¶¶ 16-23; Willig Decl. ¶ 99.

Second, incumbents purchasing a new switch will typically purchase enough capacity to serve all existing demand plus some—but not all—growth in demand that is expected over the life of the switch. *Notice* ¶¶ 77-78. Because switches are modular, the incumbent can purchase growth equipment from the vendor later to serve additional demand as it materializes. *Id.* ¶ 78. The central question, then, is how much additional capacity would an efficient carrier purchase at the outset (at the lower per-unit cost), and how much would it purchase later as growth equipment (at what is presumed to be a higher per-unit cost). That question, in turn, depends on a comparison between the carrying cost of buying the additional capacity at the outset with the present value of the cost of the growth equipment purchased at a later date.

The Murray/Pitts Declaration explains in detail the actual mechanics of these calculations of the present value of future growth purchases, which are a function of the cost of a new switch, the cost of growth equipment, future demand, the frequency with respect to which growth equipment will be added to switches to account for demand increases, the useful life of a switch,

and the discount rate. Murray/Pitts Decl. ¶¶ 12-38. As the Murray/Pitts Declaration explains, the available evidence indicates that the Commission should assume conservatively that ILECs purchase new switching to cover existing demand plus two years of additional demand, and that ILECs purchase growth equipment approximately every two years for the remaining life of the switch. *Id*. ¶¶ 24, 37; *Virginia Arbitration Order* ¶¶ 401-16. This methodology yields a conservatively high estimate of the relative percentage of growth (as opposed to new) equipment (and thus of the switch discount or switch costs) in a forward-looking network. Murray/Pitts Decl. ¶¶ 35-38.

By contrast, calculating switch costs based on the number of new and add-on switch lines that the incumbents actually plan to purchase over the next 3-5 years, as some LECs have proposed, would greatly overstate the forward-looking economic cost of switching capacity. The incumbents already have a large inventory of new digital switches with long remaining lives, and therefore most of the incumbents' actual planned switch purchases are for add-on lines. Thus, incumbents are trying to have it both ways: for purposes of calculating the switch discount, the incumbents' methodology ignores their large embedded base of switches serving current demand and looks only at future incremental deployment; for purposes of calculating the UNE switch price, however, the incumbents' estimate of the switch discount, which is heavily skewed toward expensive add-on lines, is then applied to the incumbents' entire switching base. In effect, the incumbents' methodology assumes—absurdly—that most switched lines will be served by very expensive growth equipment lines. As explained above, however, in the long-run an efficient carrier will purchase enough new switching capacity to serve at least existing demand, and would purchase growth lines only for future demand. Willig Decl. ¶¶ 102.

The Commission should not allow UNE switch rates to be adjusted to account for the possibility of future technology upgrades (as opposed to additions to accommodate line growth).

See Notice ¶ 80. Requiring requesting carriers to pay a premium for technology that does not yet exist (and that the incumbent does not use) would be fundamentally discriminatory and anticompetitive. If changes in technology somehow increase switch costs—which is unlikely—ILECs always have the option of seeking an increase in UNE rates to recover those costs. Murray/Pitts Decl. at ¶¶ 27-34

Finally, the Commission should take the additional step to ensure that state commissions can accurately estimate switch investment. As the Commission notes, vendors typically offer deep discounts from the "list price" of switches when a carrier is buying a new switch, but much shallower discounts when a carrier is buying growth equipment for existing switches to accommodate additional demand. *Id.* ¶ 76. In this regard, the incumbents have unique access to the actual prevailing switch prices and bulk discounts. Accordingly, the Commission should require incumbents to produce at the outset of any UNE switching rate proceeding all switch purchase contracts and other pertinent data over the past five years. Murray/Pitts Decl. ¶ 19-22.[25]

2. Switching Rate Structure.

The appropriate switching rate structure is a flat, per-port fee, as many state commissions and the Wireline Competition Bureau have recently held.[26] Murray/Pitts Decl. ¶ 39. The Commission has long recognized that UNE rates should be structured consistently with principles of cost causation. Incumbents' switching costs are largely independent of the amount of traffic or "usage" on the switch. Accordingly, the appropriate switching rate structure is a flat rate independent of usage. *Id.* ¶¶ 40-41.

[25] Similarly, the incumbents should be required to provide purchase price data on DLCs, cables and other significant pieces of local network equipment.

[26] *See Virginia Arbitration Order* ¶¶ 458-83; Illinois (Docket No. 98-0396, at 68); *Indiana UNE Opinion* at 42; *Minnesota UNE Order*; *Utah UNE Report*; Wisconsin (Open Mtg. 12/13/01 Docket No. 5720-TI-161).

Incumbents pay a fixed up-front fee to manufacturers for a switch with sufficient memory and processing power to serve all current and expected future demand. *Id.* The only limiting factor of a new switch is the number of lines that can physically be attached to the switch. But, when new lines are required, incumbents typically pay a flat, per line fee for add-on equipment that allows additional lines to be attached to the switch. Therefore, aside from small "peak-period" usage costs (explained below), incumbents incur no usage-related costs from CLEC usage of a switch. Switching costs should therefore be recovered on a flat, per port basis. *Id.* ¶¶ 43-46.

The Commission's Wireline Competition Bureau recently came to the same conclusion in the *Virginia Arbitration Order*. "Switch manufacturers today design switches that are limited only in the number of lines that they can serve." *Virginia Arbitration Order* ¶ 391. "Modern switches typically have large amounts of excess central processor and memory capacity, the usage by any one subscriber or group of subscribers is not expected to press so hard on processor or memory capacity at any one time as to cause call blockage, or a need for additional capacity to avoid such blockage." *Id.* ¶ 463. Accordingly, because "no one subscriber or group of subscribers is any more or any less causally responsible for the processor or memory capacity costs," "[p]rinciples of cost causation . . . support a per line port cost recovery approach because, more than any other approach, it spreads getting started costs to carriers in a manner that treats equally all subscribers served by a switch." *Id.* Because modern switch costs are not usage-sensitive, the same principles supporting per line port charges apply to other non-peak-period switching costs.

A small portion of total switching costs—less than 15 percent—are based on "peak-period usage." Murray/Pitts Decl. ¶ 47.[27] Peak-period costs are costs of equipment capacity that is

[27] *See also, e.g., Virginia Arbitration Order* ¶ 473 (summarizing the peak-period cost elements).

engineered and purchased based on peak-period demand. For switching equipment, peak-period demand refers to the average number of calls or minutes that a switch handles simultaneously during the busiest time of day. The costs of the capacity needed to meet this peak demand are considered usage-sensitive because they may vary with the amount of traffic during the peak period. *Id.*

Although recovering these costs through a per-minute charge assessed against usage of the switch in peak periods would be theoretically efficient, in practice such a pricing scheme would be extremely difficult, if not impossible, to implement. Murray/Pitts Decl. ¶ 48-51; *Virginia Arbitration Order* ¶ 474 ("Although the parties all agree that peak-period pricing is correct in principle, no party proposes a peak-period rate structure because such an approach is extremely difficult to implement in practice."). Because it is not practical or economical to assess peak-period usage charges, a second-best solution must be used instead. There are two alternative choices: (1) an average per-minute fee that is assessed against all users of the network over all time periods; and (2) a flat per-port fee that is assessed against all users of the network. Between these two alternatives, the latter is clearly preferable, for it would result in far fewer economic inefficiencies and distortions than the former. Murray/Pitts Decl. ¶ 52.

Recovering the costs of peak-period usage by assessing a per-minute charge against *all* usage would create a number of distortions, and give the incumbent a big competitive advantage, because, as noted, incumbents do not actually incur any incremental costs from non-peak-period usage. As the *Virginia Arbitration Order* explained, "[b]ecause [the incumbent's] costs vary with peak-period usage, [the incumbent] may be able to recover shared, peak-period costs from its subscribers by offering a per MOU price for peak-period minutes of use and a zero price for unlimited off-peak minutes of use. A competitive LEC may not be able to recover its costs by offering the same peak/off-peak prices that [the incumbent] offers, however, because the

competitive LEC's costs would reflect how [the incumbent] bills the competitive LEC and not how [the incumbent] actually incurs the cost." *Virginia Arbitration Order* ¶ 476.

As the Wireline Competition Bureau correctly recognized, "[a] flat per port price for recovery of these shared, peak period driven costs . . . avoids the competitive concerns that arise with a per MOU [minutes of use] charge." *Id.* ¶ 477. Requiring incumbents to recover peak-period costs through a flat, per-port fee ensures that both competitor and incumbents face similar cost structures with respect to non-peak usage of the network—*i.e.,* it ensures that the cost structure for competitors and incumbents do not vary with usage. The application of a flat, per-port charge also substantially reduces the possibility that incumbents will over- or underrecover their switching costs, because a flat, per-port fee does not depend on switch usage estimates for each switch in the network. Murray/Pitts Decl. ¶ 55.

To be sure, in theory, a flat, per-port fee could result in overuse of the network during peak periods because peak-period users would not face a price that reflects the full costs that their use imposes on the network. But, the marketplace has confirmed that the risks of call blocking, and any resulting need to augment switch capacity, are minimal. Incumbents have long provided local service using "all you can eat" (i.e., flat) per-line charges. There is no evidence that these pricing plans have resulted in call blocking or necessitated significant capacity additions. It therefore follows that a flat per-port fee for unbundled switching peak-period costs—which would then be passed on to the end-user as a flat-rate local service—also would not result in overuse of the network at peak periods relative to the *status quo*. Murray/Pitts Decl. ¶¶ 56-57. For all of these reasons, the Commission should require state commissions to adopt a flat, per-port charge to recover peak-period costs.

D. Cost of Capital

One of the costs of a network element is the "cost of capital," or return on investment, sufficient to compensate lenders and equity investors for the capital invested in the assets needed by an efficient supplier of the network elements that are being leased by competitive carriers. *Local Competition Order* ¶ 700; *Bell Atlantic-Delaware, Inc. v. McMahon*, 80 F.Supp.2d 218, 239 (D. Del. 2000). The necessary rate of return depends on investors' perceptions of the risks that such a firm would face in its network element business. *See FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944). For UNE pricing, the allowed cost of capital must compensate only for the risks of providing the network elements, and not for the higher risks of providing retail-related services, for those costs "are not attributable to the production of network elements that are offered to interconnecting carriers and must not be included in the forward-looking direct cost of an element." *Local Competition Order* ¶¶ 691, 700; *accord*, *Bell Atlantic-Delaware*, 80 F.Supp.2d at 240. Because the provision of local telephone service is capital intensive, the cost of capital is an important part of overall costs under TELRIC. If capital costs are overestimated, TELRIC prices will be too high. Excessive capital costs will therefore have the effect of deterring competition, encouraging inefficient construction of bypass facilities by entrants, and generating improper subsidies for the incumbents.[28]

There are three basic components to the cost of capital: (1) the cost of debt; (2) the cost of equity; and (3) the forward-looking capital structure (*i.e.,* the forward-looking ratio of debt and

[28] In evaluating the competitive risk of supplying UNEs, the Commission must take care to distinguish the relevant risks here—the risks of an incumbent's *wholesale* business. Increased UNE-based retail competition does not increase the risk that an incumbent LEC will fail to recover its investment in network assets, because CLECs that compete with ILECs at retail by leasing the ILECs' local network capacity are still fully compensating the ILECs for the underlying network assets. As a result, UNE-based retail competition does not result in any increased risk. The relevant risk, then is that from *facilities-based* competitors. For the elements that are still unbundled, the Commission already has determined that there is little, if any, risk that the ILECs will lose their customers to facilities-based competition. Willig Decl. ¶ 112.

equity that will be used to finance investment and operations). For the most part incumbents and competitors agree on the appropriate method for computing the cost of debt. Incumbents and competitors also agree that the cost of equity should be measured by one of two widely accepted methodologies: the discounted cash flow ("DCF") method or the capital asset pricing model ("CAPM") method. Although parties often disagree as to the best way to implement these methods, state commissions have developed substantial expertise in applying both of these tools, and state processes to estimate cost of equity are thus working well under the existing TELRIC rules. The same is true for the estimation of capital structure. Accordingly, with the exception of the few clarifications discussed below, no change to those rules is necessary or appropriate.

The Commission should clarify, however, its statement in the *Triennial Review Order* that the cost of capital should reflect "the risks of a competitive market." *Triennial Review Order* ¶ 680. To be sure, the cost of capital should reflect the risks associated with existing and potential future competitive entry—indeed, that is a core requirement of any legitimate LRIC methodology. But the Commission should confirm, consistent with the most fundamental economic principles, that no additional computations are required to account for such risk in the context of DCF or CAPM-based capital cost determinations. As noted, the cost of capital reflects current market prices—*i.e.,* stock prices and bond prices. And it is well-established that financial markets, in setting such prices, fully account for all current and expected future risk, including risks associated with competitive entry, as well as the risk of stranded investment and regulatory risk. Adoption of the legal fiction that the supply of UNEs faces a significant unrecognized risk of competition from multiple facilities-based suppliers ignores this reality, as well as the Commission rules limiting the RBOCs' unbundling obligations to markets where facilities-based competition is unlikely, and the competitive assumptions of the TELRIC paradigm itself.

1. Cost of Debt

The cost of debt is computed by measuring the yields to maturity on the incumbents' outstanding bonds. Murray Decl. ¶ 76-79; Hubbard/Lehr Essay at 7. A bond's yield to maturity equals the interest rate that the borrower (in this case the incumbent LEC) would have to pay if the bond were issued today. Computing the yield to maturity is simple for the portion of the incumbents' debt that is publicly traded. Murray Decl. ¶ 76. The relevant pricing data required to compute the incumbents' yield to maturity is thus widely available from the financial press. *Id.*; Hubbard/Lehr Essay at 7. The exact method for computing yield to maturity using the public pricing data on the incumbents' debt pricing is fully described in the declaration of Ms. Murray (¶¶ 76-79).

In UNE rate cases parties usually agree on the general methods for computing the cost of debt. However, a pair of methodological issues that have arisen in state proceedings require Commission clarification. The first relates to the appropriate "term" (or repayment period) of the debt used to compute the yield to maturity. The proper term, of course, should represent the economic lives of the underlying assets that are generating those returns, approximately 15-20 years. Lee Decl. ¶ 77-78. Some incumbents, however, have urged state commissions to base debt costs on the yield to maturity of debt issues having terms of 25 years or more, undoubtedly because investors demand higher returns for longer term debt issues. Murray Decl. ¶ 77-79. The use of these long-term returns is incorrect, for it would create a severe disconnect between the term used to compute the cost of debt and the actual economic lives of the assets that the debt is financing. Murray Decl. ¶¶ 77-78.

A simple analogy illustrates the fallacy of the incumbents' approach. A car is a relatively short-lived asset that is financed over a period of time less than or equal to its expected economic life. Indeed, it would be virtually impossible to find a lender willing to finance a car past the economic life of the asset; after all, lenders avoid accepting economically valueless assets as

collateral. Murray Decl. ¶ 78. The assumption that efficient carriers would (or even could) use long term debt to finance the relatively short lived network assets suffers from the same fallacy.

The Commission also should confirm, once again, more generally that the cost of debt should reflect the forward-looking financing choices of an efficient carrier. In some state proceedings, incumbents have argued against reflecting the very low costs of short-term debt (less than one year remaining term) in the cost of debt used to compute UNEs, even though most carriers have made extensive use of short-term debt given its recent favorable pricing. Murray Decl. ¶ 107. The cost of short term debt should be reflected in the cost of capital to the extent that its use reflects the decisions of an efficient forward-looking carrier. *Id.*

2. Cost of Equity

As noted, there are two well-established methods of computing the cost of equity, which is essentially the expected return demanded by the incumbents' stockholders. The "discounted cash flow" or "DCF" methodology uses current equity prices and expected future earnings to estimate the expected return on investment demanded by equity shareholders of firms having comparable risk to the company being studied. And the "capital asset pricing model" or "CAPM" estimates the cost of equity by comparing the non-diversifiable risk of the incumbent's business to that of the stock market as a whole. Both approaches are widely accepted methods for computing the cost of capital, and state commissions are very experienced in applying these techniques. Murray Decl. ¶ 79. The Commission should therefore confirm that both of these estimates are fully permissible bases for state commissions to determine the cost of equity. *See id.*; Hubbard/Lehr Essay at 2-3.[29] The appropriate methods for applying the DCF and CAPM are fully discussed in Murray ¶¶ 78-108. As discussed below, a few issues require Commission clarification.

[29] The DCF and CAPM methodologies are fully described in the Murray Decl. (¶¶ 79-108).

DCF Cost of Equity Model. The DCF approach to computing the cost of equity focuses on market price and earnings data for the equities from a group of companies with risk characteristics comparable to those of the investment for which cost of capital is to be estimated. Murray Decl. ¶¶ 80-88. The basic approach resembles a present value calculation in which one knows both the cash flows (*i.e.,* projected earnings or dividends) and the present value (share price) of an equity, and uses this information to compute the discount rate or cost of capital needed to equate the future stream of cash flows to the current share price of the equity. *Id.* While the equity's current price and cash flow are well-known, the challenge lies in forecasting accurately the stream of future cash flows that the equity will return over time. *Id.*

In the simplest version of the DCF model, current cash flows or earnings are projected to grow at a constant rate, based on analysts' forecasts. However, this approach is of limited usefulness. When the rate of earnings growth forecast for the next three or five years varies significantly from the long run growth rate of the economy, the assumption that short term growth rates will persist into the long run is likely to lead to nonsensical projections. Murray Decl. ¶ 80-88; Hubbard/Lehr Essay at 9. Sooner or later, the rate of earnings growth for the average firm can be expected to regress to the mean as the firm reaches the limits of its potential markets, or succumbs to new competition, technological innovation, management errors, or other constraints on earnings growth. Murray Decl. ¶ 80-88. Therefore, rather than assuming an indefinite constant growth rate, analysts typically assume a multistage growth model which uses analyst forecasts for the particular firm's earnings growth over an initial period (*e.g.,* five years), a consensus forecast of long-term economy-wide growth for years far out (*e.g.,* years 15 and

beyond),[30] and a gradual transition between these two growth rates during the intervening years (*e.g.,* years 6 through 14). *Id.*; Hubbard/Lehr Essay at 9.

The *Virginia Arbitration Order* rejected use of the DCF approach to estimating equity costs on the theory that the trajectory by which above-average or below-average rates of earnings growth will converge to long run growth rates cannot be predicted with certainty.[31] This conclusion is illogical. Murray Decl. ¶¶ 87-88. The multi-stage DCF approach is universally recognized as correct for firms whose short-term growth projections are significantly above or below the long run growth rate of the economy. *Id.* While there is no one "right" definition of second and third stages (the analyst is predicting the rate of future regression to a long run mean, after all), the three-stage assumptions used in myriad proceedings are well within the mainstream. *Id.* And the other widely used multi-stage models produce similar results. *Id.* Disregarding DCF data entirely merely because there are many possible ways to model the long-term regression to the mean would make the perfect the enemy of the good. *Id*. Accordingly, the Commission should confirm that state commissions may adopt a multi-stage DCF approach to computing the cost of equity.[32]

The CAPM Cost of Equity Model. The CAPM, as noted above, is also a widely accepted cost of equity model. Like the DCF model, however, it can generate accurate results only if used correctly. Murray Decl. ¶¶ 79, 89. The most critical variables are the market risk premium (the

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[30] For example, the Federal Reserve Bank of Philadelphia publishes a *Survey of Professional Forecasters* that includes a consensus forecast for long-run economic growth.

[31] *Virginia Arbitration Order* ¶¶ 76.

[32] The Wireline Competition Bureau's reluctance to embrace the predictive judgments inherent in a multi-stage DCF stands in sharp contrast with the Bureau's willingness to embrace a presumed long-run CAPM *beta* value of 1.0 based on considerably less data and analysis. *See Virginia Arbitration Order* ¶ 87 (acknowledging difficulty of estimating *beta*). CAPM equity cost estimates are at least as sensitive to the value of *beta* as the DCF equity cost estimates are to the parameters of the second and third stages of a multi-stage DCF.

average risk premium demanded by investors in the stock market as a whole over the returns demanded by investors in federal government bonds or bills, which have virtually no risk of default) and the value of *beta* (the coefficient that reflects the relative risk of the company being modeled versus the overall market). *Id.*

Analysts traditionally have estimated the market risk premium by studying time series data on the average premiums historically demanded by investors over many decades. Recent scholarship, however, suggests that the market risk premium has been declining over the past fifty years.[33] Murray Decl. ¶ 95. Hence, market risk premium estimates derived from a long time series (*e.g.,* data from 1926-2003, or longer) are likely to overstate forward-looking market risk premiums, which would tend to overstate costs of capital calculated using the CAPM. *Id.*; Hubbard/Lehr Essay at 11-12. Accordingly, the Commission should endorse the use of more recent data, combined with forward-looking assessments of investor risk preferences, to compute the market risk premium. *Id.*

The value of *beta*, the coefficient for the relative systematic risk of the UNE business vis-à-vis the systematic risk of the market as a whole, is another source of potential error. In the recent *Virginia Arbitration Order*, the Wireline Competition Bureau recognized that the betas of the incumbent LECs were about 0.75-0.80, but with little explanation used 1.0, the market average. *Virginia Arbitration Order* ¶ 90. This assumption is unfounded. The best available evidence is that the stand-alone beta for the business of supplying UNEs is approximately 0.75—reflecting a systematic risk significantly below that of the market as a whole. The betas of the regional Bell holding companies—BellSouth, Qwest, SBC and Verizon—have risen in recent

[33] *See*, *e.g.*, Eugene Fama & Kenneth French, *The Equity Premium*, 57 J. FINANCE 637-59 (2002); James Claus & Jacob Thomas, *Equity Premia as Low as Three Percent? Evidence from Analysts' Earnings Forecasts for Domestic and International Stock Markets*, 56 J. FINANCE 1629-1666 (2001).

years not because the companies' local wireline business has become riskier, but because the parent companies have diversified into wireless telephony and other lines of business with much higher systematic risk. Selwyn Decl. ¶¶ 36-59. Relying on these higher beta values as a proxy for the risk of the UNE business would force CLECs to subsidize part of the higher risks and capital costs of wireless telephony and other services not subject to unbundling. The resulting cross-subsidy would violate the causation standard of TELRIC, as well as the prohibitions of the 1996 Act against unreasonable rates and undue discrimination. 47 U.S.C. §§ 251(c)(2), 251(c)(3), and 252(d)(1)(A)(ii).

3. Capital Structure.

As noted, to complete the estimation of the cost of capital, one must determine the forward-looking capital structure for the company—*i.e.,* the proportion of capital that is financed through debt and equity. Willig Decl. ¶¶ 128-29. This is expressed as a forecast of weights representing the share of total financing for the company that will be provided as debt and as equity. Because debt has a prior claim on a company's cash flow, and thus is less risky than equity, returns to debt generally are lower than returns to equity. Therefore, assuming a higher share of debt financing (or leverage) generally will result in a lower estimate of the weighted average cost of capital. Murray Decl. ¶¶ 109-19.

For computing UNE costs, "a firm's target or optimal capital structure should be used in weighting the cost of equity and cost of debt." Murray Decl. ¶ 81 (quoting Ibbotson Associates). Indeed, an efficient carrier would seek to minimize its cost of borrowing by, among other things, financing its operations with the least cost combination of debt and equity. Not surprisingly, the target capital structure usually differs from a carriers' existing (or "book") capital structure (*i.e.*, the structure that existed when the debt and equity were floated) and from its current "market" capital structure (*i.e.*, the structure calculated from current market values for the company's debt

and equity).[34] Murray Decl. ¶¶ 109-19. In particular, the market weighted capital structure can vary widely in the short run with short-run fluctuations in the market price of equity—increased market prices of equity with debt prices remaining constant increases the weight of equity relative to debt, and vice versa.

Accordingly, the Commission should confirm that basic LRIC principles dictate that the capital structure be one that an efficient firm would maintain *over the long run*. Hence, the relevant market weighting is the *target* weighting of debt and equity that a rational, informed management team would employ *over the long run*.[35] This target weighting almost certainly has much less equity, and much more debt, than the current market weighting today. Murray Decl. ¶¶ 109-19; Hubbard/Lehr Essay at 13.

Erroneous capital structure estimates can also result from misspecifying the relevant line of business. In particular, the "actual" capital structures of incumbent carriers or their holding companies do not serve as a legitimate proxy for the capital structure relevant to setting UNE rates. Incumbent carriers typically engage in many lines of business in addition to leasing network elements to competitive local carriers. The Bells, in particular, provide wireless and broadband services, and the facilities used to provide these services are (largely) denied to competitive carriers. There is simply no reason to assume that the capital structure of such multi-service firms equals the target debt-equity mix of an efficient carrier engaged in the

[34] While the "market" capital structure should reflect current market values for both the debt and equity of the firm, in practice this structure is usually measured as a hybrid of the market value of the equity coupled with the "book" value of the debt. This is, of course, improper. The true "market" capital structure should reflect market values for both the firm's equity *and* its debt. Because interest rates generally have dropped significantly since most of the ILECs' debt was issued, failing to value this debt at current market levels leads to gross underestimates of the share of debt in an ILEC's current "market" capital structure. Hubbard/Lehr Essay at 12 n.21.

[35] *See*, *e.g.*, Ross, Stephen A., Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance* 441 (4th ed. 1996)).

business of leasing unbundled network elements. To the contrary, for the reasons stated above, the leasing of network elements is a generally low risk business because the services provided use facilities that the Commission has determined cannot feasibly be duplicated by competitive carriers. Murray Decl. at ¶ 122.

4. The Current Cost of Capital Methodologies Measure All Relevant Risks, Eliminating The Need For Any Risk Premiums.

Referring to the statement in the *Triennial Review Order* that "TELRIC-based cost of capital should reflect the risks of a competitive market" and that a "TELRIC-based cost of capital should reflect any unique risks . . . . associated with new services that might be provided over certain types of facilities," *Triennial Review Order* ¶ 680, 683, the incumbents have sought to recover an extra "risk premium" supposedly compensating for the risks of competitive entry, stranded costs and regulation. The Commission should confirm that no such additional "risk premiums" are necessary, and that the traditional methods for computing the cost of capital already accounts for all relevant risk.

It is beyond legitimate dispute that the well-established methods for computing the cost of capital already reflect all relevant risk levels. As noted, the cost of debt and cost of equity components of the cost of capital are based entirely on the debt and equity prices as determined by financial markets. Financial markets, in setting those prices, fully account for all risk associated with existing and expected competitive entry, as well as the risks of stranded costs and regulation. *See* Murray Decl. ¶ 10; Hubbard/Lehr Essay at 14. Therefore, to the extent that markets share the Bells' view that widespread facilities-based competition (*e.g.,* from voice over IP and wireless telephony providers) is a threat, the risks associated with that competition,

stranded costs and regulation, are fully reflected in the cost of debt and cost of equity computations. It is thus clear that no additional "risk premium" is necessary.[36]

Moreover, it is folly to assume competitive entry necessarily translates into higher costs of capital. The only risk relevant to computing capital costs is "systematic risk," which measures macroeconomic risk that cannot be diversified away by an investor. The existence of competitive entry does not necessarily change a firm's systematic risk, and thus does not necessarily change the firm's cost of capital. That is because competition does not necessarily change a firm's exposure to the type of risk that cannot be diversified away. Indeed, empirical evidence shows that many industries with substantial competition have little systematic risk and thus have very low costs of capital. Murray Decl. ¶ 7; Selwyn Decl. ¶¶ 50-52.

Here, there can be no dispute that the well-established techniques for computing the cost of capital are generous to the incumbents in that they produce conservatively high cost of capital estimates. As the Commission and federal courts have recognized, UNE prices should reflect only those costs (and risks) associated with the incumbents' provision of those UNEs. *Local Competition Order* ¶ 691. But the traditional methods for computing the cost of capital are based on all of the incumbents' lines of business, including new cutting edge lines of business that are extremely risky. Therefore, to the extent that the incumbents face less risk in the provision of UNEs than in the incumbents' other lines of business, the cost of capital estimates based on the traditional techniques described above actually overstate the incumbents' cost of capital associated only with the provision of UNEs. Selwyn Decl. ¶¶ 31-35.

[36] There are also other reasons why the incumbents face little stranded investment risk or regulatory risk. For example, the incumbents have not pursued long-term contracts for UNEs, which mitigates stranded investment risk. Murray Decl. ¶ 72. And, in the *Triennial Review Order* ¶ 683, the Commission rejected the addition of a further return premium for "regulatory risk."

And the *Triennial Review Order* has conclusively established that there is *no* competition-related risk associated with the provision of UNEs. The impairment standard adopted in the *Triennial Review Order* (*e.g.,* ¶¶ 202-202, 385-297, 359-360, 419-428, 534) requires incumbents to unbundle network elements only when the likelihood of significant facilities-based entry is remote. Hence, *by definition*, UNEs will be provided *only* when the competitive risk of facilities-based competitive entry is virtually non-existent. Selwyn Decl. ¶¶ 5-10, 31-35 Moreover, in such an environment there is little risk of stranded investment. The traditional cost of capital estimates described above, therefore, more than fully compensate the incumbents for all relevant risk. *See also* Selwyn Decl. ¶ 54-58 (empirical analysis showing that systematic risk increases as additional incumbent lines of businesses are incorporated into a CAPM model); *accord* Murray Decl. ¶ 102.

Finally, the Commission asks whether computing the cost of capital based on the market's assessment of the current and expected risks that the incumbent will actually face—as is already done by the traditional cost of capital methodology—is consistent in theory with the notion that UNEs should be priced at efficient levels. *Notice* ¶¶ 82-84. There is no inconsistency. The relevant economic paradigm that underlies the TELRIC standard is not perfect (or near-perfect) competition, with multiple facilities-based competitors, but perfect *contestability*, a more general and robust model of competition. Murray Decl. ¶ 6; Willig Decl. ¶ 111; Selwyn Decl. ¶ 12. As Verizon has conceded, "one of the assumptions of TELRIC . . . is that the market is perfectly contestable."[37]

The relevant risk in a perfectly contestable market—the market whose performance the TELRIC standard seeks to emulate—is that of the first mover, which in local telephony is the incumbent. Willig Decl. ¶ 116. In a contestable market, the incumbent is the only significant

[37] Virginia Arbitration Tr. 3587 (Prof. Vander Weide).

firm in the market, and its prices are disciplined by the threat of competitive entry, not by actual competition. Willig Decl. ¶ 116. Therefore, the relevant cost of capital is one that reflects the fact that the incumbent is the only significant participant in its markets, and that the incumbent's prices are disciplined by the threat of competitive entry. Willig Decl. ¶ 116.

In this paradigm the incumbent first mover faces less risk than potential entrants. The risks associated by potential entrants include those associated with overcoming entry barriers, *e.g.,* deploying large amounts of capital, and possible competitive retaliation, say very low pricing, by the incumbent. Murray Decl. ¶ 128-33. By contrast, the incumbent has made the necessary investments and faces no such entry barriers. Therefore, under the perfect contestability paradigm, computing the cost of capital based on the market risk incurred by the incumbent is entirely consistent with LRIC.

In this regard, any "risk additive" beyond that actually expected to be incurred by the incumbent would be flatly inconsistent with the statutory goal of promoting competition. In effect, a "risk additive" would result in cost of capital estimates that exceed both those actually incurred by the incumbent, and those that can rationally be expected to be incurred by the incumbent in the future. Charging competitors UNE rates that reflect costs of capital assuming risks substantially exceed those that incumbents do—or possibly could—incur would place competitors at a severe competitive disadvantage vis-à-vis the incumbent. Murray Decl. ¶¶ 9-10.

5. UNE-Specific Cost of Capital

AT&T supports the Commission's proposal to allow states to retain the "option of establishing UNE-specific costs of capital." *Notice* ¶ 90. There is no basis for assuming that a carrier will face the identical risk for each type of service it provides. Carriers often purchase only a subset of the incumbents' facilities. For example, "data LECs" purchase access only to the incumbents' loops, not their switches. Thus, in a perfectly contestable market, an incumbent

that sought to use a "blended" cost of capital that was applied uniformly to all of its leasing services would face the possibility of entry from another carrier for its relatively "low risk" services. Willig Decl. ¶ 130.

But it is certainly true that data limitations may prevent regulators from differentiating with precision the risks and capital costs of individual UNEs, because capital costs are usually estimated using more highly aggregated data. For this reason, the Commission should refrain from mandating that state commissions develop such UNE-specific cost of capital. Murray Decl. ¶ 18. To the extent that a state commission is able to determine reliably the relative risks of deploying certain network elements, however, state commissions should be permitted to adopt different capital costs for those elements. Willig Decl. ¶¶ 130-32.[38]

E. Depreciation

Depreciation is another important component of economic cost. Depreciation is an accounting measure of the decline in the economic value of an asset over a specified period of time. Depreciation has three causes: (1) physical deterioration caused by use of the asset; (2) physical deterioration caused by the passage of time, not the use of the asset; and (3) obsolescence caused by innovation, which makes available substitute assets of greater quality or efficiency. Willig Decl. ¶¶ 135; Clarke Essay at 3-5.

The *Notice* asks for comment on two questions: (1) the appropriate asset lives, and (2) the appropriate time pattern of depreciation recovery over those lives. *Notice* ¶¶ 92-108. As explained below, the Commission should continue to rely on Commission-prescribed asset lives (instead of GAAP lives), and it should recognize that the Commission-prescribed depreciation

[38] There is thus no need for a Commission-mandated cost of capital. And to the extent that the Commission does substitute a cost of capital for that of a state commission, it could not simply use the cost of capital that the commission computed in 1990 (the last time that the Commission made such a calculation).

lives are already sufficiently short to render further acceleration of depreciation recovery inappropriate.

Asset lives. The Commission should reaffirm its longstanding reliance on Commission-prescribed asset lives, and reject the any proposals to substitute GAAP financial lives. *See Notice* ¶¶ 94-101. The Bells' perennial campaign to substitute shorter lives remains unsupported by any credible evidence that regulatory lives overstate the service lives that are actually experienced, or will be experienced in the future. To the contrary, continued growth in the Bells' depreciation reserves indicates that the Commission-prescribed regulatory lives are, if anything, too short. Lee Decl. ¶¶ 15-21 & Att. 4-5.

Since 1980, the Commission has prescribed regulatory lives that rely on analyses of "company plans, technological developments, and other future-oriented studies."[39] Hence, the "prescribed lives are not based solely on the engineered life of an asset, but also consider the impacts of technological change and obsolescence."[40] Lee Decl. ¶ 13-14.

In 1995, the FCC reaffirmed its forward-looking orientation in connection with the simplification of its depreciation represcription practices. The FCC prescribed a range of projection lives that could be selected by carriers for prescription on a streamlined basis. The FCC stated that these ranges were based upon "statistical studies of the most recently prescribed factors. These statistical studies required detailed analysis of each carrier's most recent retirement patterns, the carriers' plans, and the current technological developments and trends."[41] In 1999, the FCC completed a review of these ranges, updated them, and found them to be appropriate for use "by Federal and state regulatory commissions for determining the appropriate

[39] *1999 Update* ¶ 5.

[40] *Universal Service Order* ¶ 427.

[41] *1995 Prescription Simplification Order* ¶ 11.

depreciation factors for . . . interconnection and UNE prices."[42] Indeed, the FCC later reiterated that "depreciation expense calculations based on the Commission's prescribed projection lives and salvage factors represent the *best forward-looking estimates* of depreciation lives and net salvage percentages."[43]

Likewise, in the recent *Virginia Arbitration Order*, the Commission's Wireline Competition Bureau found that FCC lives (similar to the ones advocated by Mr. Lee in his declaration) are the best cost calculations and reflect competitive market conditions.[44] In reaching this result, the Wireline Competition Bureau expressly rejected as unsupported Verizon's claim that competition would necessarily lead to shorter asset lives.[45] Consistent with these findings, the overwhelming majority of state commissions have relied on the FCC prescribed lives, not financial lives or other truncated lives, to set UNE prices since 1996. Lee Decl. ¶¶ 39-34 (citing precedent).

In light of this history, the Commission is absolutely correct in insisting on "objective evidence" before accepting claims that changes in technology have changed, or are likely to change, asset lives. *Notice* ¶ 99. There is no basis for simply assuming that recent technological

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[42] *1999 Update* ¶ 34.

[43] *Id.* ¶ 61.

[44] *Virginia Arbitration Order* ¶ 112.

[45] *Id.* ¶¶ 115-118 & n. 334 ("Verizon provides no studies or other documents explaining the anticipated technological advances that might cause it to retire plant more quickly than anticipated when the safe harbor was established (or modified in the case of digital switching), nor has it effectively rebutted AT&T/WorldCom's argument that new technology can extend the life of assets, as DSL technology has done with copper facilities. Similarly, Verizon provides no evidence to demonstrate how increased competition has affected retirement rates since the asset lives we use were established, or how it might affect future retirement rates. . . . We find that Verizon has not demonstrated that financial book lives are a more appropriate measure of the actual economic life of an asset. Verizon did not document or explain in significant detail the methodologies, studies, or data that it, or its auditor, relied on in developing asset lives, nor did it demonstrate that these lives are in fact compliant with GAAP").

advances have made asset lives shorter, or that anticipated future changes in technology will do so. To the contrary, experience in the telecommunications industry and other network industries demonstrates that competition and technological innovation are as likely to lengthen asset lives as to shorten them. Klick Decl. ¶¶ 86-103; Willig Decl. ¶¶ 138.

Empirical data on trends in RBOC depreciation reserves confirm the continuing reasonableness of the Commission-approved regulatory lives. As the FCC has recognized, "[t]he depreciation reserve is an extremely important indicator of the depreciation process because it is the accumulation of all past depreciation accruals net of plant retirements. As such, it represents the amount of a carrier's original investment that has already been returned to the carrier by its customers."[46] In the two decades since the Commission adopted forward-looking depreciation lives, industry depreciation reserves—including RBOC depreciation reserves—have steadily increased, and are now at all-time highs. Lee Decl. ¶¶ 15-21 & Att. 4-5.

Analysis of the rate at which RBOCs are currently turning over their plant assets provides further empirical evidence of the reasonableness of the FCC's prescribed ranges. Current asset turnover rates indicate that the lives of assets currently in service are at or above the high end of the FCC's prescribed life ranges for *every* major category of assets used by the RBOCs. Lee Decl. ¶¶ 22-28 & Att. 6.

The same considerations argue against accepting financial book lives for UNE pricing decisions. As the *Notice* recognizes (¶ 98), the Commission has consistently declined to rely on financial book lives for regulatory purposes, and it should continue to do so. Financial book lives are inappropriate for setting prices paid by ratepayers, including UNE prices. Financial book lives are governed by the Generally Accepted Accounting Principle ("GAAP") of

[46] FCC, Report on Telephone Industry Depreciation, Tax and Capital/Expense Policy, Accounting and Audits Division, April 15, 1987 ("AAD Report"), at 5-6.

conservatism. This principle dictates that, when alternative estimates are about equally likely, the less optimistic estimate—that is, the estimate that yields the lowest net income—should be used.[47] This conservative bias is entirely appropriate for financial accounting, whose primary purpose is to protect investors. It is entirely inappropriate, however, for regulatory accounting, whose primary purpose is to protect ratepayers. Lee Decl. ¶¶ 35-41; Clarke Essay at 7.

The Commission has embraced this principle repeatedly—in its 1993 *Prescription Simplification* proceeding,[48] in its *Universal Service Inputs Order*,[49] and in its 1999 rejection of a USTA forbearance petition seeking prescription of shorter lives.[50] There is no evidence that the GAAP conservatism principle has changed since 1999; to the contrary, conservatism "has long been identified with the idea that deliberate understatement [of net assets and profits] is a virtue," and that notion is deeply ingrained and is still in evidence despite efforts over the past 40 years to change it."[51] If anything, the recent accounting scandals involving such companies such as

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[47] Statement of Financial Accounting Concepts No. 2, Financial Accounting Standards Board, May 1980, at 95.

[48] *1993 Prescription Simplification Order* ¶ 46 ("GAAP is guided by the conservatism principle which holds, for example, that, when alternative expense amounts are acceptable, the alternative having the least favorable effect on net income should be used. Although conservatism is effective in protecting the interest of investors, it may not always serve the interest of ratepayers").

[49] *Universal Service Order* ¶ 429 ("the projected-life values currently used by LECs for financial reporting purposes are inappropriate for use in the model. . . . The depreciation values used in the LECs' financial reporting are intended to protect investors by erring on the side of conservative understatement of net assets, partially achieving this goal by erring on the side of over-depreciation. These preferences are not compatible with the accurate estimation of the cost of providing services that are supported by the federal high-cost mechanism").

[50] *1999 Update* ¶ 48 (conservatism "did not offer adequate protection for ratepayers in the case of depreciation accounting," and "[w]e are not persuaded that the role of the conservatism principle has changed or that we should change our previous decision"); *cf. Shalala v. Guernsey Memorial Hospital*, 514 U.S. 87, 99-103 (1995).

[51] Financial Accounting Standards Board, *Original Pronouncements*, Concepts Statements No. 2 ¶ 93.

Enron have reinforced the instinct of the profession to cling to the GAAP principle of conservatism. Lee Decl. ¶ 41.

Like financial lives, lives used by engineers in planning capital expenditures are also inappropriate for use in TELRIC calculations. *Notice* ¶ 98. First, internal corporate planning lives are deliberately set on the short side to provide a margin of safety against expected over-exuberance by project proponents. Lee Decl. ¶ 45. Second, because most corporate projects tend to involve the reuse (or more intensive use) of existing assets, internal planning lives are similar to "remaining" lives, which are shorter than the projection lives of newly acquired assets. By contrast, the relevant lives for UNE pricing under the TELRIC model, which models the cost of building a complete network, are projection lives. *Id*. Finally, CLEC lives are also inappropriate because CLEC assets are primarily non-loop assets, and thus have shorter average lives than ILEC assets, which are dominated by outside plant investment. *Id*.

Depreciation rate (straight line vs. front-loaded). The Commission also seeks comment on whether an anticipated decline in asset prices warrants front-loading depreciation recovery rather than straight-line depreciation. *Notice* ¶ 102-08. As a practical matter, the depreciation lives currently approved by the Commission are sufficiently short—*i.e.*, provide sufficiently generous annual depreciation charges—to render further acceleration of depreciation recovery unwarranted. Lee Decl. ¶¶ 46-47; Klick Decl. ¶¶ 104-109.[52]

To begin with, regulatory lives are *already* accelerated in two important respects. First, traditional straight-line depreciation generally has been replaced with equal-life group depreciation. Today most state regulators favor a methodology called "equal life group"

[52] In theory, economic depreciation rates should be front-loaded when prices or volumes are declining, and back-loaded when prices or volumes are increasing. As the *Notice* appears to recognize, however, assumptions about asset lives and the time pattern of depreciation are interrelated, it would be a mistake to consider one in isolation from the other. *Notice* ¶ 108.

depreciation using Gompertz-Makeham survivor curves,[53] and most state-of-the-art TELRIC models reflect this form of depreciation. The equal-life group method produces annual depreciation and net plant curves that are more front-end loaded than straight-line depreciation. Accelerating depreciation further by explicit adoption of an accelerated depreciation method could lead to significant overrecovery. Klick Decl. ¶¶ 104-109; Willig Decl. ¶ 141; Clarke Essay at 14. Second, the Commission's current regulatory asset lives are generally much shorter that the asset lives actually projected. Lee Decl. ¶¶ 47; Klick Decl. ¶¶ 104-109; Willig Decl. ¶ 141; Clarke Essay at 12-13. This produces a front-loading of capital recovery that has largely the same effect as accelerated depreciation.

Nor is further acceleration of depreciation recovery warranted by the supposed "tension" between "levelizing prices, on the one hand, and establishing UNE prices that reflect anticipated equipment price changes, on the other hand" (*Notice* ¶ 92). Levelized recovery of capital costs is in fact sustainable. Indeed, a particular form of levelization—a constant real annuity covering both depreciation, the cost of capital and taxes—is the *only* time pattern of recovery that is sustainable over time in contestable markets. To the extent that the economic depreciation of an asset is front-end loaded because the price of the asset is falling, the present value will be higher, ceteris paribus, and the annual annuity amount will also be higher. Lee Decl. ¶¶ 48-57; Klick Decl. ¶¶ 104-109; Willig Decl. ¶ 142; Clarke Essay at 13-15.

[53] See *Universal Service Order* ¶¶ 422-424 and accompanying footnotes. In this Order, the FCC notes the widespread acceptance that equal-life group depreciation has received from incumbent local telephone companies and regulatory commissions. For a more complete description of the equal-life group methodology, see American Telephone and Telegraph Company, *Engineering Economy*, 3rd ed., McGraw-Hill, 1963, pp. 345-365. Equal-life group depreciation is the default methodology assumed in the FCC's Synthesis Model, the HAI Model and BCPM.

A recent Commission staff working paper by David M. Mandy and William W. Sharkey does not warrant a contrary conclusion.[54] In their paper, Doctors Mandy and Sharkey suggest that depreciation expenses can be underrecovered or overrecovered if: (1) depreciation charges are based solely on projected asset lives, without adjustment for changes in asset prices, and (2) UNE prices are reset in rate cases at intervals shorter than the asset lives. To correct for this supposed problem, Mandy and Sharkey propose the use of upward correction factors for assets with falling prices, and downward correction factors for assets with rising prices. Lee Decl. ¶ 49; Klick Decl. ¶¶ 104-109; Willig Decl. ¶¶ 143-44.

The Mandy/Sharkey paper provides no basis for adjusting TELRIC. As noted above, the regulatory asset lives are already significantly accelerated because of the use of the "equal life group" depreciation methodology and because the lives used in UNE rate cases are considerably shorter than the service lives actually projected for local network assets. Hence, existing depreciation methods already provide the same kind of additive or multiplier that Mandy and Sharkey advocate; applying the adjustment to existing depreciation lives proposed by Mandy and Sharkey would actually produce substantial cost overrecovery. Lee Decl. ¶¶ 56-57; Klick Decl. ¶¶ 104-109; Willig Decl. ¶¶ 143-44; Clarke Essay at 11.

Equally important, there is no *a priori* reason to assume that the loss in economic value of telecommunications plant in fact occurs disproportionately in the early years of the life of an asset. Although this may be true of some kinds of electronic telecommunications investment (e.g., digital circuit), it is not true of other kinds (*e.g.*, copper, conduit systems). Because of increases in civil engineering costs over time, such investment may enjoy economic appreciation that offsets any loss in value from physical wear and tear. Lee Decl. ¶¶ 55-57; Klick Decl.

[54] David M. Mandy and William W. Sharkey, "Dynamic Pricing and Investment from Static Proxy Models," Federal Communications Commission, OSP Working Paper No. 40 (September 2003) ("*Mandy-Sharkey*").

¶¶ 107; *accord*, *Mandy-Sharkey*. To account for the "back-loading" that even Mandy-Sharkey recognize would be appropriate for such assets, FCC projection lives would have to be *longer* than average in-service life for these assets, but the Commission's projection lives generally lack any such adjustment. If anything, then, the Commission's projection lives are one-sidedly in favor of the incumbents: FCC projection lives account adequately for the front-loading of depreciation on assets whose prices are expected to decline in the future (which has the effect of raising UNE prices), but does not adequately account for the back-loading of depreciation for assets whose prices are expected to increase in the future. If these latter assets *were* properly treated, UNE prices would decline. Lee Decl. ¶¶ 55-57; Klick Decl. ¶¶ 104-109. Furthermore, if the Commission were to contemplate any explicit front-loading of capital recovery, it would need to identify the specific profile of asset vintages used to supply each UNE and guarantee the indefinite availability of the UNE. Clarke Essay at 13-15.

F. Expense Factors.

Expense factors are used to determine the annual costs (*i.e.,* expenses) of owning and operating the facilities and equipment needed to provide a particular network element. Such expenses generally include, for example, the cost of automobiles, general purpose computers, taxes, marketing and billing costs, as well as the costs of legal and human resources departments. *See, e.g., Virginia Arbitration Order* ¶¶ 122-123. Expense factors comprise a very large portion of UNE costs. Incumbents have taken advantage of their unilateral control over the data required to compute forward-looking expense factors to inflate those factors, thereby substantially inflating UNE rates.

The Commission should clarify that the incumbents' current expenses cannot be presumed to approximate forward-looking costs. *Cf. Notice* ¶¶ 109-110. An efficient, forward-looking network consists of improved systems that do not require as much maintenance or labor

as the incumbents' systems, thereby saving on expenses. Moreover, the ILECs' book expenses include expenses associated with capabilities that requesting carriers are not entitled to lease. Indeed, the Commission's Wireline Competition Bureau has recognized that the incumbents' existing expenses are not those of an efficient forward-looking network. *Virginia Arbitration Order* ¶¶ 136-160.[55]

The least arbitrary solution to computing expense factors is to estimate forward-looking expenses based the ratio of existing expenses to existing direct costs as reported by the incumbents to the Commission in ARMIS reports. *Cf. Notice* ¶ 109. Specifically, to compute forward-looking expenses, the ratio of existing expenses to existing direct costs can be multiplied by the forward-looking direct costs computed by the forward-looking cost model adopted by the state commission. This calculation essentially assumes that the incumbents' forward-looking and embedded expenses will comprise the same proportion of direct costs. This solution has multiple advantages. The data for computing such factors are publicly available from the incumbents' ARMIS reports to the Commission, which at least allows third parties to verify any computations.[56] Moreover, this methodology reasonably reflects that the incumbents' expenses—both forward-looking and embedded—will bear some proportionate relationship to the incumbents' direct costs. To be sure, to the extent that the incumbents' existing expenses or direct costs are disproportionately inflated above efficient levels, the ratio will contain some

[55] The ILECs for their part have supported using their current expenses on the grounds that deregulation has provided sufficient incentives to ensure that the ILECs currently are operating efficiently. But as demonstrated above, that argument is specious; the incumbents' existing networks are plagued with inefficiencies that inflate all operating costs, including expenses. Empirical analyses of other industries likewise confirm that the expenses of incumbent monopolists, like the ILECs, generally remain well above efficient levels absent actual wide-spread competition. Klick Decl. ¶¶ 17-28.

[56] Certain ARMIS expense data include incumbents' retail-only costs. To comply with the Commission's prohibition against reflecting retail costs in UNE rates, 47 C.F.R. § 51.505(d)(2), such retail costs must be removed before computing expense ratios.

error. However, the error associated with this approach generally will be far less than the error produced by arbitrarily adjusting embedded expense levels to use as proxies for forward-looking expenses, which cannot be verified because the incumbents have exclusive access to the data required to make the calculations.

G. Rate Deaveraging.

The Commission must continue to require states to implement geographic deaveraging of UNE rates. *Notice* ¶ 133-137. Competitive entry into local telephone markets is critically dependent on ensuring that the costs incurred by competitors—*i.e.*, the UNE rates charged by incumbents—mimic the incumbents' forward-looking costs. Willig Decl. ¶¶ 145-48. Because these costs vary significantly by population density, averaged UNE rates could only discourage efficient facility investment, encourage inefficient arbitrage, and deny many consumers any opportunity for competitive choice. *Id.*

Geographic deaveraging is appropriate where states have not implemented retail rate deaveraging. *Notice* ¶ 136. Whether or not a state has implemented retail rate deaveraging has no impact whatsoever on the economics of geographic UNE rate deaveraging. Willig Decl. ¶ 146. The relevant economic issue is whether competitors' costs mirror those of the incumbent. *Id.* If the incumbent enjoys a cost advantage in any geographic area, competitive entry will not be economically viable in that area, regardless of whether retail rates are deaveraged. *Id.* The incumbent always will be able to charge a lower retail price to the end-user as a result of the incumbent's lower costs, regardless of the retail rate structure adopted by state commissions. *Id.*[57]

[57] There is no merit to the incumbents' claim that geographic deaveraging of UNE rates undermines state subsidy mechanisms. According to the incumbents, some states permit incumbents to charge higher rates in urban areas, to subsidize lower rates in higher-cost rural areas. As a result, these incumbents argue, geographic UNE rate deaveraging permits competitors to enter only in the urban areas, and to charge lower rates than the incumbents, (continued . . .)

H. Non-Recurring Charges

Adoption of the proper methodology for determining non-recurring charges ("NRCs") is critical. As the Commission has repeatedly recognized, NRCs "can be a serious barrier to entry," because they "constitute an upfront cost to the competitive LEC that is generally not recoverable if it subsequently loses the end-user customer served with the UNE."[58]

NRCs are significant for two reasons. First, NRCs are "up-front costs" that CLECs will incur in conjunction with each customer that they win from the ILEC (which need not incur such costs to retain their retail customers). Murray Decl. ¶¶ 123, 128. NRCs thus can render uneconomic CLEC market entry using those UNEs, even if the UNE prices themselves reflect sound economic principles. *Id.* ¶ 128. Second, NRCs are, in effect, sunk costs that increase the capital that a new entrant must invest up-front even before it receives a penny of revenue from its end-user customer, which means that the resulting cost of capital to CLECs exceeds that for the ILECs. *Id.* ¶ 129.

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thereby requiring the incumbents to respond by charging rates in urban areas that match those of the competitors. This reduction in urban revenues, the incumbents assert, undermines their ability to use urban revenues to cross-subsidize lower retail rates in rural areas. The problem with this argument is that it holds the development of effective local telephone competition hostage to state policies of maintaining uneconomic implicit rate subsidies. Indeed, it is well established that implicit subsidies distort competition, which undermines the purpose of the Act. *See, e.g., Texas PUC* v. *FCC*, 183 F.3d 393, 424-425 (5th Cir. 1999); *Alenco Communications* v. *FCC*, 201 F.3d 608, 622-623 (5th Cir. 2000). And that is precisely why the Act forbids the Commission from adopting implicit subsidies to fund universal service. 47 U.S.C. § 254(e). Moreover, there are other, less anticompetitive and economically inefficient methods to subsidize LECs. Willig Decl. ¶ 148. As one example, states could adopt explicit subsidies, whereby state collect funds from carriers serving urban customers, and use those funds to subsidize the provision of rural services. In fact, by continuing to require states to implement deaveraged UNE rates, competitive entry ultimately would force states to abandon their uneconomic implicit subsidy mechanisms and adopt more efficient and pro-competitive explicit subsidy mechanisms, a result that is competition-enhancing. *Id.*

[58] *See, e.g., Notice* ¶ 114; *Virginia Arbitration Order* ¶ 555; *Local Competition Order* ¶ 745.

1. Cost Identification Issues

The *Notice* seeks comment on two issues involving "identification of costs": (1) the network that should be assumed for purposes of determining NRCs; and (2) the charges that should be permitted for recovery of the costs of an ILEC's operations support systems ("OSS"). *See Notice* ¶¶ 116-119. For the reasons stated below, the Commission should continue to require state commissions to assume that the ILEC uses the least-cost, most efficient network available (the so-called "state-of-the-art network") in calculating NRCs. Furthermore, the Commission should not permit the Bells to recover the costs of developing multi-competitor OSS solely from CLECs, but should instead recognize that these costs exist to facilitate the transition to a competitive environment, and therefore recover the relevant costs through a competitively neutral charge on all customers.

Forward-Looking Cost. Any non-recurring cost model should be based entirely on forward-looking network assumptions and categorize non-recurring and recurring costs in accordance with the principles of cost causation. Because "consistency among the various components of rates is important" (*Notice* ¶ 117), the same basic costing methodology should be used to determine both recurring and non-recurring charges. Thus, for the reasons described above in the discussion of recurring costs, state commissions should continue to determine NRCs by assuming a "state-of-the-art network" approach (*i.e.,* an approach that assumes the use of the least-cost, most efficient technology currently available). *See Notice* ¶¶ 116-117, 119; Murray Decl. ¶¶ 20, 22, 126, 136, 184, 191-92.

In addition to using a forward-looking "state-of-the-art" approach, the determination of NRCs should use the same set of network assumptions as those used for recurring charges. *Notice* ¶ 117; Murray Decl. ¶¶ 20, 134-59. As the *Notice* noted, "Using one set of network assumptions for recurring charges and a different set of network assumptions for NRCs

potentially results in some over-recovery or under-recovery."[59] If an ILEC were permitted to use a different network to calculate non-recurring costs than the network that it used to calculate recurring costs, the NRCs would bear no reasonable relation to forward-looking costs.[60] Indeed, the use of inconsistent network designs would likely result in double recovery of costs by the ILEC, which would not only deter efficient entry by CLECs but also give the ILECs even less incentive to modernize their networks. Murray Decl. ¶¶ 142-48, 158. Numerous state commissions have also required the use of identical network assumptions to calculate recurring and non-recurring charges.[61]

The *Notice* also asks whether the use of network assumptions that "more closely track" the ILECs' embedded networks would "eliminate some of the speculation that often characterizes state proceedings"—*i.e.*, the necessity to choose between conflicting opinions of subject matter experts. *Notice* ¶ 119. It would not. In the first place, experience already shows that the ILECs lack data on their "real-world" practices. Second, even under a "real-world" approach, state commissions would still need to resolve conflicting testimony by subject matter experts as to whether the ILEC's practices (including the times required to complete certain tasks) are reasonable and accurate, and which party's time and motion study is more reliable.[62]

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[59] *Notice* ¶ 117. *See also Virginia Arbitration Order* ¶ 569 (rejecting use of different network assumptions in Verizon's cost model to calculate recurring and non-recurring costs, because "This approach almost certainly would result in over-recovery or under-recovery of costs").

[60] *See Virginia Arbitration Order* ¶ 569; Murray Decl. ¶¶ 126, 134-37, 143-51.

[61] State commissions have repeatedly recognized the importance of using a consistent network design to calculate recurring and nonrecurring costs for unbundled network elements. *See, e.g., Virginia Arbitration Order* ¶ 569 n.1473; *Pennsylvania UNE Order*, at 178; *Massachusetts Order*, at 341; *Petition of Rhythms Links, Inc. for Arbitration to Establish an Interconnection Agreement With Southwestern Bell Telephone Company*, Texas PUC Docket Nos. 20226 and 20272, Arbitration Award issued November 30, 1999, at 96; *California PUC Decision*, at 4.

[62] Murray Decl. ¶¶ 160-71, 178. For example, in the recent Virginia Arbitration proceeding, Verizon used a cost study that was "tied to existing processes and the existing network," but used subject matter experts to adjust for expected system enhancements and efficiencies in its alleged forward-looking network. *See Virginia Arbitration Order* ¶¶ 562-63, 567. There were similar (continued . . .)

The "real-world" approach urged by the ILECs would inevitably *overstate* NRCs by replicating the inefficiencies of the ILECs' current networks. *Id.* ¶¶ 125-27, 138-42. The evidence shows that the ILECs' networks are replete with inefficient non-recurring practices that would be absent from a forward-looking network. *Id.* ¶¶ 180-81. Thus, it would be totally inappropriate for the Commission to establish "a presumption that an incumbent LEC's current practices with respect to non-recurring activities are efficient." *See Notice* ¶ 119. If anything, the Commission should establish a presumption to the contrary. *See* Murray Decl. ¶ 184.

The *Notice* asks whether "an incumbent LEC's incentives to be efficient [are] diminished when competitive LECs are the primary users of a particular activity." *Notice* ¶ 119. To the extent that CLECs are the primary users of a non-recurring activity, the ILEC's incentives to be efficient are reduced, but *not* because the prices based on the current TELRIC methodology are below the ILEC's "actual" costs (s*ee Notice* ¶ 7), but because the ILECs seek to impede competition in the local exchange market. When the CLECs are the primary users of a nonrecurring activity, the ILECs have every incentive to be inefficient—in both cost and performance—because the CLECs are their competitors. By using inefficient practices, the ILECs can inflate their own costs (and thus the prices the ILECs charge to CLECs under whatever costing standard applies) and provide CLECs with inefficient, inferior service—all for the purpose of maintaining the ILECs' monopoly. Murray Decl. ¶¶ 124, 179, 188-91. In short, the ILECs' lack of initiative to be efficient has nothing to do with TELRIC pricing—and *everything* to do with anticompetitive behavior.

Assumptions About OSS Capabilities. The *Notice* seeks comment on "what assumptions should be made with respect to the capability of the incumbent LEC's OSS" in light

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disputes in the *Qwest Nine-State 271 Order*. *See Notice* ¶ 119 n.158; *Qwest Nine-State 271 Order* ¶ 216.

of the *Notice*'s "tentative conclusion to more closely account for the real-world attributes of the routing and topography of the incumbent LEC's existing network in developing forward-looking costs." S*ee Notice* ¶ 118. Incorporating "real-world" geographic features into cost models, however, is a separate issue from the choice of the type of OSS to be used for determining forward-looking costs. Thus, a "more real-world" approach to routing and topography does not require the assumption of the ILEC's existing OSS, nor the valuation of the OSS at their historic cost levels, or at their short-run costs. Willig Decl. ¶ 74; Murray Decl. ¶ 192 n.105.

A forward-looking approach requires the assumption that the ILEC has in place efficient—and highly automated—pre-ordering, ordering, and provisioning systems that operate with minimal manual intervention once the service order information has been entered into the systems correctly. Murray Decl. ¶¶ 192-97. The costs of the remaining OSS functions—maintenance and repair and billing—would not properly be recoverable as NRCs, because they are regularly recurring functions that should be included in recurring costs. Murray Decl. ¶ 194 n.107.

OSS Development Costs. The *Notice* asks whether "the costs of opening an incumbent LEC's OSS" should be borne entirely by CLECs, or should be spread among the ILEC's retail customers as well. *See Notice* ¶ 118. CLECs should not be required to bear *any* of the ILEC's costs of modifying and developing its OSS to make the OSS accessible to CLECs.

First, allowing the ILEC to recover its OSS development costs from CLECs would be contrary to forward-looking economic principles and principles of cost causation. Such a requirement would compensate the ILEC for its *actual incurred* costs, rather than the forward-looking costs that an efficient provider would incur to build its OSS using the most efficient technology available. Murray Decl. ¶¶ 227, 239. Furthermore, the cause of these costs is not the

CLEC, but the legal mandate that ILECs provide nondiscriminatory access to their OSS as part of the transition to a competitive market. *Id*. ¶¶ 224-26.

Second, requiring the CLECs to bear the ILECs' development costs would create a substantial barrier to entry. Congress and the Commission required the ILECs to provide nondiscriminatory access to their OSS as a necessary means of achieving the objective of a truly competitive local exchange market. It would be totally contrary to this pro-competitive objective to make CLECs and their customers entirely responsible for paying the costs of making competition possible. *Id.* ¶¶ 225-26. If CLECs were required to bear all of the ILEC's OSS-related costs in making the transition to a more competitive environment, the CLECs would effectively have to bear the cost of developing *two* gateways—their own gateway and the ILEC's gateway—while the ILEC would pay for none. *Id.* ¶ 228.

Rather than require the CLECs to bear all or part of the ILEC's OSS development costs, the Commission should classify the ILECs' one-time OSS development costs as "competition-onset costs" and provide for their recovery in a competitively neutral manner. *Id.* ¶ 229. The preferable approach would be to require each LEC—whether the ILEC or a CLEC—to bear its own costs for the gateway systems that are necessary to permit new entrants to access the ILEC's OSS. *Id.* ¶ 230. Although the ILEC incurs costs to create a gateway to provide CLECs with access to its OSS, each CLEC must incur costs to develop its own end of the gateway and train its personnel in the use of the OSS. *Id*. Moreover, because all consumers—including retail customers of the ILEC—will benefit from competition in the local exchange market, it is reasonable to expect all of them (and not merely the CLECs and their customers) to bear some of the costs of the OSS gateways that are a necessary adjunct to the creation of a competitive marketplace. *Id.* ¶ 232.

The recovery of OSS development costs through these competitively-neutral mechanisms would be consistent with the Commission's treatment of number portability costs—which, like nondiscriminatory access to OSS, must be provided by ILECs under the 1996 Act to facilitate competition. The Commission held that ILECs should recover their costs of implementing the local portability requirements of the Act from their own end-users, rather than from CLECs.[63] State commission decisions have also recognized the need for a competitively neutral mechanism for recovery of OSS development costs.[64]

If the Commission declines to require each LEC to bear its own OSS development costs, the Commission should allow an ILEC only to collect a per-line surcharge that would be the equivalent of recovering the ILEC's prudently-incurred OSS development costs from all end-users, regardless of whether they take their service from the ILEC or from a CLEC. The burden of such a surcharge on the ILEC would, if anything, be disproportionately *light*, because CLECs would be required to bear their own OSS costs as well as a share of the ILEC's own costs.

Costs of Manual Activities. As previously indicated, a forward-looking cost study should assume a fully mechanized OSS, with minimal manual processing of service orders. Assuming that the data entered into the ILEC's systems by the CLEC are accurate, the flow-through capabilities of a forward-looking OSS eliminate virtually all labor components associated with order processing. As a result, the order processing component of pre-ordering, ordering, and provisioning should be nearly zero, because the costs of the OSS themselves are included in recurring capital costs. Murray Decl. ¶¶ 196-99.

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[63] *See Telephone Number Portability Order*, ¶¶ 135-149; Murray Decl. ¶ 237.

[64] The CPUC, for example, has required SBC California (formerly Pacific Bell) and Verizon California (formerly GTE California) to seek recovery of OSS gateway costs through such mechanisms, rather than through charges to CLECs. *California PUC Decision*, at 47-48; *New York PUC Decision*, 15; Murray Decl. ¶ 236.

In a forward-looking environment, an ILEC would efficiently manage its OSS so that its orders can flow through electronically, and any fallout that the ILEC handles manually should be minimal. *Id.* ¶¶ 196-98, 200-202. Although electronic order processing does not necessarily eliminate all manual intervention, the cost of manual intervention should be recoverable as an NRC *only if*: (1) even a forward-looking OSS designed to process orders efficiently would require manual intervention in that particular circumstance; *or* (2) absent an error or request attributable to the CLEC, the ILEC could have processed a particular order without manual intervention. *Id.* ¶¶ 200-202.

The first of these circumstances would rarely occur in a forward-looking environment; OSS systems should be able to recognize any errors in the order and return the order electronically to the CLEC for correction and resubmission. *Id.* ¶ 200. Similarly, when orders contain "CLEC errors," the ILECs' systems often reject them and return them to the CLECs (rather than cause them to fall out for manual processing), in which case the CLECs bear most or all of the cost of correcting the error. *Id.* Even when an order actually falls out for manual processing, the CLEC-caused fallout rate should be only 2 percent. *Id.* ¶¶ 200-201. Both this Commission and a number of State commissions have found that the 2 percent rate is consistent with TELRIC requirements.[65] Any significant level of manual intervention is almost entirely attributable either to the ILEC's management decision not to provide flow-through capability for certain orders, or to the ILEC's failure to maintain correct data in its OSS. *Id.* ¶ 199. CLECs should not be required to pay for manual processing in these circumstances, because the ILEC's design decisions and incorrect databases reflect inefficiencies that are incompatible with a forward-looking network. *Id.* ¶ 203-206.

[65] *See Virginia Arbitration Order* ¶ 592 & n.1524 (citing State commission decisions that have found the 2 percent fallout rate to be appropriate); Murray Decl. ¶ 202.

Recovery of Ongoing OSS Costs Through Expense Factors, Rather Than Through Separate Charges. The ongoing costs of operating and maintaining the OSS should be recovered by the ILEC through its annual cost factors, in the same way that the ILEC recovers all other forward-looking recurring expenses. Recovery through annual cost factors automatically spreads the ongoing costs of OSS over all the uses of that OSS—retail as well as wholesale. ILECs should not be permitted to recover such costs through separate charges that assign all ongoing OSS costs to CLECs as wholesale customers. *See Notice* ¶ 118; Murray Decl. ¶¶ 209-16, 242-43. Recovery of ongoing OSS costs through annual cost factors is also the most practical approach, given that the ILECs do not include precise detail in their books of accounts that would allow further identification of cost causation and therefore a more granular assignment of ongoing OSS costs. *Id.* ¶¶ 23, 212-13.

2. The Commission Should Limit Recovery of NRCs To the Costs of Those Activities That Exclusively Benefit the CLEC Ordering the UNE or Activity.

The Commission should limit recovery through NRCs to those costs that "exclusively benefit the competitive LEC ordering the UNE." *Notice* ¶ 121. Stated otherwise, a particular cost should be recoverable as an NRC only if was incurred for a one-time benefit (*i.e.*, is exclusive to a particular order) and cannot be used for later orders. If a facility can be reused for later orders without change, the cost of that activity should be treated as a recurring charge, because it benefits later users. Indeed, treating the costs of an activity that benefits later UNE customers as non-recurring would likely result in double recovery of costs by the ILEC because the costs are already captured in the recurring rates for that UNE.[66]

[66] *See, e.g.*, Murray Decl. ¶¶ 244-53. For example, the cost of a physical cross-connection of a loop's feeder and distribution plant at the feeder-distribution interface should be treated as a recurring cost, because the loop recurring cost captures the entire investment and expense of installing the loop. *See id.* ¶ 251; *Notice* ¶ 122; *Virginia Arbitration Order* ¶ 582. Conversely, *only* if a CLEC benefited *exclusively* from a cross-connect that it requested from the main (continued . . .)

The "reusability" test would allow ILECs full recovery of their forward-looking costs. *See* Murray Decl. ¶¶ 245-50; *Notice* ¶ 123. If a particular activity is "reusable," the forward-looking costs of that activity will be fully recovered through recurring charges. *See* Murray Decl. ¶¶ 245-47; *Notice* ¶ 121. The Commission itself has found that this "reusability" test is more consistent with the Commission's definition of a recurring cost as a cost "incurred periodically over time," and its "general rule that costs should be recovered in a manner that reflects the way they are incurred."[67]

Because the "reusability" test is the proper method for distinguishing between recurring and non-recurring costs, the Commission should reject the "contrary approach" of "allowing NRCs for every activity related to a competitive LEC order." *See Notice* ¶ 124. This approach would treat as NRCs the costs associated with *any* one-time activity requested by a CLEC, regardless of whether that activity benefits more than one user over time. Such an approach violates a basic principle of cost causation: costs, such as construction and maintenance, which are incurred over time should be recovered in recurring rates and excluded from non-recurring rates.[68]

Indeed, treating the costs of any one-time activity as an NRC would likely result in double recovery of costs by the ILEC, and unfairly place the full burden of the costs of

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distribution frame in a central office to its collocation space would it be appropriate to assess any type of NRC for that work. Murray Decl. ¶ 251 n.123; *Notice* ¶ 122.

[67] *Virginia Arbitration Order* ¶ 583; *Local Competition Order* ¶ 749. The *Local Competition Order* recognized the "reusability" standard when it required that State commissions "ensure that non-recurring charges imposed by incumbent LECs are equitably allocated among entrants where such charges are imposed on one entrant for the use of an asset and another entrant uses the asset after the first entrant abandons the asset." *Id.* ¶ 751. The Commission has also recognized the "reusability" principle in the context of collocation. *See Expanded Interconnection Order* ¶ 50.

[68] *See* Murray Decl. ¶¶ 245-46, 253; 47 C.F.R. § 51.507(d); *Local Competition Order* ¶¶ 745, 750-751.

"reusable" activities on the first user. Murray Decl. ¶¶ 248, 253.[69] As the Commission recognized in the *Virginia Arbitration Order*, for example, an ILEC could not avoid the possibility of double recovery simply by subtracting NRC revenues from the costs that it used to calculate its ACFs, because such an approach created "the significant likelihood that there [would be] a mismatch between the costs recovered through NRCs and the costs not recovered through ACFs."[70] And, as the *Notice* suggests, allowing ILECs to assess NRCs for any one-time activity would also reduce an ILEC's incentive to develop mechanized processes when it would otherwise be efficient to do so. *See Notice* ¶ 124; Murray Decl. ¶ 252 n. 124.

If the Commission does allow NRCs for every activity related to a CLEC's order (and it should not), it would be necessary to develop a mechanism to refund part of the NRC to the original beneficiary of the activity, if other CLECs also (or subsequently) benefited from the same work. *See Notice* ¶ 124. However, such an approach would be both unworkable and an inadequate substitute for proper costing methodology. *See* Murray Decl. ¶ 250 n.122. Similarly, the Commission could not "resolve concerns about the level of NRCs by eliminating or reducing the allocation of common costs and overhead to activities for which NRCs are imposed." *See Notice* ¶ 125. As long as the Commission retains its requirements that costs should be directly assigned to UNEs to the greatest extent practicable and that common costs and overheads must be forward-looking and efficient, the level of common costs and overhead is unlikely to affect NRCs substantially. *Id.* ¶¶ 264-65.

[69] Backing out certain costs to avoid double recovery would be necessary under both the "reusability" test and the approach of treating the cost of any one-time activity as a nonrecurring cost. However, the need to back out costs would be much less extensive and problematic under the "reusability" test. Murray Decl. ¶¶ 254-57; *Notice* ¶ 123.

[70] *Virginia Arbitration Order* ¶ 584.

Finally, the Commission should hold that the NRCs which ILECs charge to their *retail* customers are irrelevant in determining whether NRCs imposed on *CLECs* are reasonable. *See Notice* ¶ 125. Retail NRCs, which were determined in the context of the ILECs' monopoly of the local exchange market, have no applicability to the determination of rates in the competitive market assumed by TELRIC principles. These retail NRCs were developed under different costing standards by state commissions, and some of these NRCs have not been updated for more than a decade. Moreover, many NRCs for CLECs (such as charges for electronic processing of service orders) have no retail analogues. Murray Decl. ¶¶ 261-62.

3. Disconnection Charges Should Be Recovered (If At All) Only When the Service Is Actually Disconnected

Any disconnection charges should be assessed, if at all, only when the CLEC places a disconnect order. *See Notice* ¶ 126. Allowing the ILEC to assess such charges at the time of installation would violate principles of cost causation, require a CLEC to pay charges for costs that the ILEC often does not incur, and erect yet another barrier to entry.

Assessment of a separate "disconnect" charge at the time of disconnection adheres to the principle of cost causation, because an ILEC does not incur the costs of disconnection until the facility is actually disconnected. Murray Decl. ¶ 266. In fact, the ILEC often incurs *no* disconnection costs, because many facilities are not physically disconnected when a customer terminates its service; a simple command from the OSS activates or deactivates service. *Id.* ¶¶ 266-269. The Wireline Competition Bureau has recognized that ILECs adhere to this practice because it allows for immediate service activation to the next customer at a given premise.[71]

[71] *Virginia Arbitration Order* ¶ 596. Qwest has previously represented that in the case of loops used in the UNE platform, it leaves the connection in place where there is a high degree of dedicated outside plant. *Qwest Nine-State 271 Order* ¶ 220.

Moreover, when an end-user served through resale or UNEs migrates to another LEC (whether an ILEC or a CLEC), the facilities would not be disconnected.[72]

By contrast, requiring a CLEC to pay for disconnection at the time of installation would violate cost causation principles. CLECs would be paying for services they had not ordered and in many cases would effectively be compensating an ILEC for costs that it will not incur. *Id.* ¶ 269. This is totally contrary to the Commission's previous holding that costs must be recovered in the manner that they are incurred.[73] Such charges would simply increase the barriers to entry that NRCs already create. *Id.* ¶ 277. The *Virginia Arbitration Order* correctly concluded that such a practice "unnecessarily raises entry costs in contravention of the Act's goal of promoting competition."[74] It would be tantamount to charging CLECs for losing customers that they had just recently won.

The ILECs' practice of collecting disconnection charges[75] from their *retail* customers at the time their service is installed is no basis for use of the same practice in the *wholesale* context.[76] Rate policies that the ILECs have been able to apply in their monopoly retail environment have no applicability to a wholesale environment, particularly since the wholesale environment involves transactions between the ILEC and its dependent competitors. Murray Decl. ¶ 267.[77]

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[72] *See Virginia Arbitration Order* ¶ 596; Murray Decl. ¶ 269. If another LEC won a customer currently served through UNEs, any costs incurred in connecting the UNEs to the new LEC would generally be covered by the installation NRC. *See Virginia Arbitration Order* ¶ 596.

[73] *See Local Competition Order* ¶ 743.

[74] *Virginia Arbitration Order* ¶ 597.

[75] It is important to recognize that disconnect "costs" are a misnomer because, as previously indicated, there is often no actual physical disconnection. *See* Murray Decl. ¶ 269.

[76] *See Notice* ¶ 127 (noting that "Many NRCs that incumbent LECs charge their retail customers cover both installation and disconnection of service"); Murray Decl. ¶¶ 267-68.

[77] In any event, the ILECs' typical justification for "bundling" connection and disconnection charges in the retail context is the potential difficulty of collecting the disconnection charge after (continued . . .)

If disconnection costs could properly be recovered up-front (and they cannot), such charges would need to be discounted to account for the time value of money based on the average amount of time that the CLEC was expected to use the UNE.[78] But, as the *Notice* indicated, attempting to discount the costs to their present value would be "complicated" and "prone to error," because they would require an estimate of the amount of time the CLEC would use the UNE or retain the customer.[79] Even if ILECs supplied sufficient data to perform the calculations, it would not result in an equitable distribution of the net present value of disconnection among CLECs.[80]

4. ILECs Should Not Be Permitted To Assess Separate Charges for Conditioning Loops.

Finally, the Commission has sought comment on "when and how the costs associated with loop conditioning should be recovered." *Notice* ¶ 130. ILECs should not be permitted to recover separate costs associated with loop conditioning, because such recovery would be inconsistent with forward-looking cost principles. Murray Decl. ¶¶ 278-88.

As a preliminary matter, although the *Notice* discusses line conditioning costs in the context of NRCs (*id.* ¶¶ 129-130), any NRC for loop conditioning would be inappropriate because, by its very nature, loop conditioning is a recurring activity. Once a loop is conditioned, it becomes available to all users of the network and can be used long after the CLECs' request

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the termination of service to a customer who may be leaving the ILEC's service territory, a concern which does not apply to the ongoing wholesale relationship between the ILEC and the CLEC. Murray Decl. ¶ 268. *See also Virginia Arbitration Order* ¶ 598 ("the risk of non-collection only exists if the competitive LEC exits the market"); *Rhode Island Report*, at 66-67; *Utah Order*, at 10-11 ("it is poor policy to charge up-front for these costs that [Qwest] may not incur until much later").

[78] *Notice* ¶ 128; *Utah Order* at 11; Murray Decl. ¶ 272.

[79] *See Virginia Arbitration Order* ¶ 597; *Notice* ¶ 128; *see also* Murray Decl. ¶ 273.

[80] Murray Decl. ¶¶ 272-74; *Notice* ¶ 128.

for conditioning. Thus, any loop conditioning costs should be an aspect of recurring rates, if they are to be recovered at all. Murray Decl. ¶ 282.

However, regardless of whether they are classified as recurring or non-recurring costs, a separate charge for loop conditioning would be flatly inconsistent with sound TELRIC principles. The ILECs' current "conditioning" activities simply reflect the inefficiency of their embedded networks. For more than 20 years, network engineering guidelines have called for a loop architecture that does not deploy load coils, excessive bridged taps or repeaters (all of which inhibit the provision of advanced services such as ISDN and DSL). *Id.* ¶ 279; Riolo Decl. ¶¶ 144-46. If the ILECs had adhered to those guidelines, no loops requiring conditioning would currently exist. In fact, excessive bridged taps on cable pairs should have been eliminated beginning in 1972, when the Serving Area Concept was implemented as the outside plant engineering design guideline. Riolo Decl. ¶¶ 144-46.

Because loop conditioning would be unnecessary in a forward-looking network, even the recovery of NRCs for the conditioning of copper loops longer than 18,000 feet would be contrary to forward-looking principles.[81] In a forward-looking network, any loops over 18,000 feet in length should be provisioned over Digital Loop Carrier systems, which would eliminate the necessity for loop conditioning. Riolo Decl. ¶ 147; Murray Decl. ¶ 281.

For all of these reasons, additional charges for loop conditioning would be nothing more than a double recovery and "tribute" paid by CLECs for each DSL customer they win. *See* Murray Decl. ¶¶ 282-83; Riolo Decl. ¶ 148. In addition, permitting such charges is bad policy, because the ILECs will have every incentive to perpetuate this inefficient practice, rather than to deploy the technology that would render conditioning unnecessary. Murray Decl. ¶ 297. The

[81] *See Notice* ¶ 130 (asking whether State commissions should permit NRCs for loop conditioning "only in extraordinary circumstances, such as copper loops that are longer than 18,000 feet").

Commission should therefore use this proceeding to reverse its holding in the *Local Competition Order* that a CLEC must compensate the ILEC for the cost of conditioning the loop.[82] That holding was based on the Commission's determination that loop conditioning is part of the ILEC's duty to provide unbundled network elements under Section 251(c)(3).[83] As previously described, however, an efficient, forward-looking network would not require any conditioning of loops.

In fact, Commission decisions since the *Local Competition Order* have repeatedly recognized the economic and competitive problems resulting from the assessment of a separate charge for loop conditioning. For example, in the *UNE Remand Order* the Commission acknowledged that "networks built today should not require voice-transmission enhancing devices on loops of 18,000 feet or shorter," and that loop conditioning charges "may constitute a barrier to offering xDSL services."[84] The *UNE Remand Order* amended the Commission's regulations to provide that an ILEC could collect such charges only "in accordance with the Commission's forward-looking cost principles promulgated pursuant to section 252(d)(1) of the Act," and "in accordance with the rules governing nonrecurring costs in [47 C.F.R.] § 51.507(e)."[85] More recently, in its *Triennial Review Order*, the Commission held that ILECs may recover the cost of "routine network modifications" (which the *Order* defined to include loop conditioning), but noted that "the costs associated with these modifications often are reflected in the recurring rates that competitive LECs pay for loops," and "if costs are recovered

[82] *See Local Competition Order* ¶ 382.

[83] *Id.*

[84] *UNE Remand Order* ¶¶ 193-194.

[85] *See* 47 C.F.R. § 51.319(a)(3)(ii)-(iii); *UNE Remand Order* Appendix C; *see also id.* ¶ 194 (stating that state commissions should "ensure that the costs incumbents impose on competitors for line conditioning are in compliance with our pricing rules for nonrecurring costs").

through recurring charges, the incumbent LEC may not also recover those costs through an NRC."[86] The *Triennial Review Order* specifically deferred until *this* proceeding the issue of whether charges for loop conditioning are consistent with forward-looking costs principles at all, and left it to the state commissions "to determine [in the interim] whether a particular cost should be recovered from a competitive LEC through a recurring charge, a non-recurring charge, *or not at all*," in accordance with its costing principles.[87]

In the *Virginia Arbitration Order*, the Wireline Competition Bureau acknowledged "a possible tension between our TELRIC pricing rules, which apply to both recurring and nonrecurring costs, and prior decisions of the Commission" allowing ILECs to recover the cost of loop conditioning from CLECs.[88] Although the Commission felt compelled by its rules to allow recovery of some conditioning charges, the conditioning charge would have applied only in "extraordinary" cases involving loops longer than 18,000 feet.[89] Given the Commission's own recognition of the difficulties of justifying conditioning charges from an economic and competitive standpoint, the time has come for the Commission to reverse its previous holdings that ILECs may assess a separate charge for loop conditioning, regardless of whether it "retain[s] the network assumptions of the current TELRIC rules." *See Notice* ¶ 130.

A cost sharing arrangement between the CLEC requesting conditioning of a loop and future users of the loop is no substitute for reversal of the Commission's previous authorization

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[86] *See Triennial Review Order* ¶ 640; *id.* ¶ 640 & n.1942; 47 C.F.R. § 51.319(a)(1)(iii)(B).

[87] *Id.* ¶ 641 (emphasis added). The Commission made clear that State commissions, in their discretion, may "conclude that loop conditioning costs are not forward-looking costs." *Id.* n.1944; *see also id.* ¶ 641 & n.1945.

[88] *Virginia Arbitration Order* ¶ 639 (footnotes omitted).

[89] *Id.* The Commission also ruled that Verizon could assess an NRC for removal of bridged taps only when the tap is within current Carrier Service Area ("CSA") standards. *See id.* ¶¶ 637, 639, 642.

of conditioning charges.[90] Such an arrangement, which the Commission required in the *Local Competition Order*, is attractive in theory because it would correctly recognize that loop conditioning may benefit future users, and that in such circumstances the requesting CLEC should not pay more than its fair share.[91] Despite the theoretical appeal of a cost sharing arrangement, it is unlikely that a workable arrangement could be implemented. First, it would be necessary to identify the specific subsequent users who should be required to bear part of the cost, and the degree to which they benefited from the activity.[92] Second, an appropriate method of allocating the costs would need to be determined, even though there are any number of ways in which an allocation could be made.[93] Third, under any such arrangement the ILEC would be required to track the date on which the loop was conditioned, the amount of the NRC that was originally paid, the CLEC which paid the charges, the purposes for which the loop was used by subsequent carriers, and the whereabouts of all carriers that previously used the conditioned loop (in order that those carriers could be reimbursed). Some of this information would be either inappropriate or difficult for the ILEC to obtain.[94]

Most importantly, no cost sharing arrangement—no matter how carefully developed—will prevent the anticompetitive effects of conditioning charges. Allowing an ILEC to assess substantial conditioning costs will deter carriers from ordering conditioning—and, therefore,

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[90] *See Notice* ¶ 130 (requesting parties to address "[h]ow, if at all, should such NRCs [for loop conditioning] be distributed among the competitive LEC requesting the conditioning and future carriers that provide DSL service over the conditioned loop").

[91] *See* Murray Decl. ¶ 298; *Local Competition Order* ¶ 751 (requiring state commissions to ensure an equitable allocation of nonrecurring charges among entrants where such charges are imposed on one entrant for the use of an asset and another entrant subsequently uses the same asset); *Virginia Arbitration Order* ¶ 644 (requiring parties to propose a cost sharing arrangement for conditioning charges).

[92] Murray Decl. ¶ 299.

[93] *Id.* ¶ 300.

[94] *Id.* ¶ 301.

from providing DSL to customers whose loops would require conditioning. Thus, rather than attempt to require or develop a cost sharing arrangement, the Commission should simply rule that ILECs may not assess a separate charge to CLECs for loop conditioning. *See* Murray Decl. ¶¶ 296, 303.

VI. TELRIC PRINCIPLES MUST APPLY TO ALL INTERCONNECTION RATES, INCLUDING RATES FOR EXCHANGE ACCESS, INTERCARRIER COMPENSATION AND COLLOCATION.

The Commission asks whether "there is any reason that changes to current pricing rules for UNEs should not also apply to interconnection provided pursuant to section 251(c)(2)." *Notice* ¶ 147. As the Commission itself held in the *Local Competition Order* (¶ 1056) and reaffirms in the *Notice* (¶ 147), the Act requires that rates for UNEs and interconnection be based on the same cost-based standard. The Commission thus lacks authority under the Act to adopt a different pricing standard for interconnection and UNEs.

Moreover, there is no legitimate economic basis for pricing UNEs differently than interconnection. As Professor Willig explains, use of the same pricing standard for UNEs and interconnection is sound public policy. Willig Decl. ¶ 149. Clearly, CLECs have no ability to enter local markets and compete with ILECs unless their customers have the ability to call customers of the ILECs. *Id.* Thus, for the same reasons that ILECs have strong incentives to deny CLECs the right to interconnect with their customers, so do they have strong incentive to charge excessive rates for such interconnection. To ensure a level playing field, it is critical that the rates incumbents charge to other carriers for interconnection, including exchange access and local intercarrier compensation, mirror the incumbent's forward-looking economic costs of those services. *Id.*

The Commission must recognize, however, that setting cost-based interconnection rates for the termination of local traffic does not fully address the issue. Access charges for interstate services remain well above cost. There is little to be gained from requiring that local traffic be priced at TELRIC if the ILECs remain able to collect monopoly profits from long-distance carriers and their customers. Indeed, as customers increasingly demand "all distance" offerings, allowing the ILECs to charge supracompetitive access charges gives them the incentive and

ability to price-cost squeeze their rivals and prevent competition on the merits. The Commission must therefore adopt a unified approach to intercarrier compensation that both recognizes that the costs associated with delivering traffic do not turn on the identity of the originating or terminating carrier or of the calling or called party, and that is implemented in a competitively neutral fashion that does not have the effect of picking winners and losers.

The guiding principle for a unified approach to intercarrier compensation should be clear in light of the foregoing. Efficiency and competitive neutrality are fostered by basing intercarrier compensation on forward-looking costs. Properly structured forward-looking, cost-based prices encourage efficient investment and use, discourage regulatory arbitrage, and create a level, competitively neutral playing field.

The Commission also seeks comment on the appropriate pricing methodology for a specific interconnection-related element, *i.e.,* "whether charges for direct current (DC) power should be based on the number of amps consumed or the number of amps fused." *Notice* ¶ 147. This issue deserves special attention because incumbent pricing of DC power in collocation arrangements has been particularly discriminatory. Carriers that collocate equipment in ILEC buildings or other structures have no choice but to purchase electricity from the ILEC to power that equipment. Klick Decl. ¶ 131-39. That equipment requires significant amounts of direct current ("DC") power. *Id.* Consequently, costs related to DC power are primary contributors to the costs competitors incur when entering local telephone markets, making it critical that the prices imposed by ILECs are properly cost based. *Id.* As explained by Mr. Klick (¶¶ 131-39), incumbents have been substantially overcharging for DC power by requiring competitors to pay for power that is neither delivered to nor consumed by collocation customers in cases where the ILEC rates per fused amp are based on their cost per actually drained amp.

Rather than charging collocation customers for power that is actually delivered, incumbents are charging collocation customers for all the power that could, in theory, be delivered to them. *Id*. Such overcharges occur both under "fused amp" and "load amp" DC power pricing arrangements. *Id.*. To address this problem, the Commission should confirm that incumbents are permitted to charge collocation customers only for the power that is actually delivered to collocation customers. *Id.*

VII. RESALE PRICING.

Section 252(d)(3) requires that state commissions determine wholesale prices for telecommunications services "on the basis of retail rates charged to subscribers for the telecommunications services requested, excluding the portion thereof attributable to any marketing, billing, collection and other costs that will be avoided by the exchange carrier." 47 U.S.C. § 252(d)(3). The Eighth Circuit has held that "the phrase 'will be avoided' refers to those costs that the ILEC will actually avoid incurring in the future, because of its wholesale efforts, not costs than 'can be avoided.'" *Iowa Utils. Bd. v. FCC*, 219 F.3d 744, 755 (8th Cir. 2000) (*Iowa Utils. Bd. II*). The Commission asks whether any additional guidance is necessary. *Notice* ¶¶ 141-146.

The Commission should clarify that, under this standard, wholesale rates should not include the marketing and other retail costs incurred by incumbents to compete against CLECs. Incumbents now compete against CLECs in numerous lines of business, including residential and business voice and data services. Selwyn Decl. ¶ 66-67. The incumbents aggressively market these services, and the costs of those marketing and retailing efforts, like other costs incurred by incumbents, are recovered through the incumbents' retail rates. *Id.* To ensure that competitors do not subsidize the incumbents' cost of competing against them—which plainly would place them at a severe competitive disadvantage—it critical that wholesale rates do not include such marketing and retailing costs. *Id.*

Removing such costs from retail rates is consistent with the Act's requirement that wholesale rates "exclude" any "marketing" costs and the Eighth Circuit's requirement that such costs be removed if they "will be avoided." 47 U.S.C. § 252(d)(3); *Iowa Utils. Bd. II*, 219 F.3d at 755. The marketing and other retail expenses incurred by incumbents to obtain and retain retail customers is completely unnecessary to obtain and retain wholesale customers. Selwyn

Decl. ¶ 65-67. Accordingly, it is clear that such consumer-oriented marketing and retailing costs "will be avoided" when selling telecommunications services to wholesale customers.

VIII. IMPLEMENTATION ISSUES.

A. The Commission Should Issue New Rules To Streamline State Commission Pricing Proceedings.

As discussed above, one of the core problems with state UNE rate proceedings today remains the information asymmetry between the incumbents and all other parties, including the state commissions. Bells consistently refuse to make publicly available some of the most basic data, data that only they have and that are essential to estimate forward-looking costs. Klick Decl. ¶¶ 45-74. For example, the Bells have refused to disclose the amount of structure sharing that is currently available to them, and instead have argued—as they will in this proceeding—that virtually no structure sharing should be used in modeling the Bells' costs. Some Bells also have refused to make granular line count (including categorization by service and technology) data available for estimating forward-looking costs and per line costs. *Id.* And Bells have refused to fully make available the actual discounts they receive when purchasing new switches and growth additions, DLCs and other equipment, providing instead only partial data, and then arguing that the high prices reflected in that partial data set should be applied to all switched lines. *Id.*; Murray/Pitts Decl. at ¶ 19-22. To avoid such information asymmetry, the Commission should develop a list of data to which the incumbents have unique access, and to which access in necessary to estimate UNE prices. The Commission should then require incumbents to make all data on that list available to parties and the state commission in UNE pricing proceedings. Furthermore, the Commission should direct that each ILEC shall report relevant data across all states served by the ILEC and its local affiliates in other states, and that proprietary data produced in one state is presumed portable to all states in the region subject to similar protective orders.

B. The Commission Should Not Adopt A UNE Adjustment Factor.

The Commission seeks comment on whether it should adopt a mechanism for making automatic adjustments to UNEs rates over time, in lieu of full rate proceedings. *Notice* ¶¶ 138-40. It should not. The Commission's own experience with automatic productivity adjustments demonstrates that such schemes typically result in unlawfully high rates—a risk that would be especially intolerable in the context of UNE rates. Moreover, determining the appropriate adjustments would be an enormously complex undertaking that would be no less administratively burdensome than the cost proceedings they would replace, and therefore the imagined benefits of such a scheme would be illusory.

First, an automatic annual rate adjustment would inevitably result in rates that are not based on the "cost" of the element, as Congress required. 47 U.S.C. § 252(d)(2). Setting UNE rates based on predictions in cost changes over a multi-year period is inherently inaccurate compared to the direct review of costs that state commissions currently perform. The inherent inaccuracy of automatic adjustments could have especially severe competitive consequences in the context of UNE rates. If the automatic adjustment underestimates future reductions in cost, the result will be UNE rates that are higher than the incumbent's costs—an outcome that would effectively preclude competitive entry. *See* Willig Decl. ¶¶ 151.

Inevitably, the inherent inaccuracy of automatic adjustments would systematically disfavor CLECs. To be sure, the automatic adjustment could overestimate reductions in costs, resulting in uneconomically low rates that would harm incumbents' interests. Incumbents typically argue, however, that artificially low rates would result in a "taking" and would deprive incumbents of sources of universal service support. For these reasons, regulators tend to err on the side of underestimating future cost reductions. Thus, adoption of an automatic adjustment could be expected to make UNE rates not only more inaccurate, but systematically higher, precluding the competitive entry that Congress sought to encourage.

The Commission's own experience with an automatic productivity (or "X-Factor") adjustment in the context of interstate access charges dramatically confirms the tendency of such mechanisms to produce artificially high rates. The Commission's initial X-Factors for access services substantially underestimated the LECs' actual annual productivity gains, and as a result the LECs' annual rates of return increased markedly. To correct for its inaccurate predictions, the Commission was forced to make compensating adjustments to reduce access rates in three different orders between 1995 and 2000.[95] Even now, the LECs' interstate rates of return for certain services such as special access remain far in excess of returns permissible under the rate-of-return system.

Second, selecting an automatic adjustment would be no less burdensome than the current system of periodic direct review of costs. Indeed, the Commission essentially abandoned the X-Factor in the *CALLS Order*, precisely because of the enormous difficulty of selecting an appropriate X-Factor and because of the endless litigation that such proceedings consistently spawned. As the Commission has explained, "the X-Factor has been subject to debate ever since the first time it was set with the creation of price caps," and "the appropriate X-Factor [has] been subject to contentious proceedings that heretofore have not been resolved despite years devoted to their resolution." *CALLS Order* ¶¶ 38, 40. The Commission resolved these difficulties by eliminating the X-Factor as a prediction of productivity increases altogether, and changing it to a mechanism for achieving absolute rate levels determined by an industry-wide agreement. *Id.* ¶ 160 ("the X-Factor as adopted herein will not be a productivity factor as it has been in past price cap formulas"). That experience hardly constitutes a ringing endorsement for automatic cost adjustment factors.

[95] *See 1994 Price Review Order*; *1997 Price Cap Review Order*; *CALLS Order*.

Selecting an appropriate adjustment for UNE rates would be even more burdensome than anything the Commission has attempted in the context of access charges, for several reasons. First, a separate UNE adjustment factor would have to be computed for each UNE. *Cf. Notice* ¶ 139. As Professor Willig explains, the adjustments for loops and switching are fundamentally different, because "a loop cost factor would reflect expectations about future line demand, whereas a switch cost fact would have to reflect expectations about future minutes of use of the network." Willig Decl. ¶ 153. Moreover, loops and switching experience different gains in productivity: "[r]ecent history shows that the cost of switching equipment has declined sharply, while the productivity of switches has increased precipitously. By contrast, the prices for copper loops . . . have remained relatively constant, and the productivity of copper loops has increased at a far slower pace." *Id*. Accordingly, a single adjustment factor applied to all UNEs would quickly result in non-cost-based rates for all UNEs.

Indeed, that is precisely what happened under the Commission's price cap scheme for access charges. The Commission adopted a single X-Factor to be applied to access services as a whole, even though in reality loop services experienced far slower productivity gains than switching and transport services. By the time of the *CALLS Order*, incumbent LECs were earning extremely high rates of return on switching and transport services, and the Commission ordered LECs to target X-Factor reductions under the *CALLS Order* exclusively to those services. *See CALLS Order* ¶ 171 & n.376 ("[b]ased on . . . ARMIS data, Commission staff has calculated approximate rates of return of 85 percent for the traffic sensitive basket, 20 percent for the trunking basket, and 15 percent for the common line basket").

In addition, an accurate UNE cost adjustment factor would have to be more complex than the Commission's X-Factor, which predicts only productivity gains. *Notice* ¶ 139. UNE costs also are critically dependent on network demand. Because a large portion of UNE costs are

common costs that are allocated based on the number of customers or minutes, growth in demand results in either lower per line or per minute costs. *See* Willig Decl. ¶ 156. Therefore, an accurate UNE cost factor must predict not only productivity changes but also changes in demand. Predicting changes in demand can be quite difficult, however, as recent fluctuations in network demand have dramatically illustrated. *See Id*. ¶ 157; *see also CALLS Order* ¶ 171.

UNE cost adjustment factors also would have to be state specific. *Notice* ¶¶ 139-140. UNE costs, and changes in UNE costs, indisputably vary from state-to-state; moreover, states have adopted different rate structures for the same element, and therefore a UNE cost adjustment would have to be tailored to each state's rate structures.

For all of these reasons, a UNE adjustment factor would likely result in rates that are not cost-based, and would provide no appreciable gain in administrability.

C. The Commission Should Not Adopt A National Timetable Or True-Up Mechanism.

The Commission should not adopt a national "timetable" for implementing any changes to the TELRIC rules adopted in this proceeding, nor should it mandate a "true-up." First, imposing any sort of "national timetable" that requires state commissions to immediately initiate new pricing proceedings would be extremely costly to CLECs, ILECs and state commissions, and would create immediate and vast (indeed, national) uncertainty regarding the costs of competitive entry. This would inevitably further chill investment in competitive LECs at a time when they can ill afford it. *See, e.g., Cable Act Reform Order* ¶ 43 ("we observed that the uncertainty created by the lingering potential of refund liability may generally discourage investment, without which operators may lack the resources to upgrade their networks, add new . . . services, and provide new and innovative services.").

Moreover, a Commission mandate requiring all states to hold new pricing proceedings at the same time would likely result in many competitive carriers' being unable ability to

participate in many state proceedings. State pricing proceedings require parties to develop state-specific cost studies, expert testimony on myriad issues, written briefs, and typically require weeks of hearings. Because states do not currently conduct pricing proceedings at the same time, carriers are able to shift litigation-related resources from state to state as one pricing proceeding ends and a new one begins. A Commission mandate that all 50 states immediately initiate UNE pricing proceedings would create an administrative and logistical nightmare, requiring carries to direct enormous amounts of new resources to the litigation of UNE rates—resources that would be better spent competing in the marketplace.

While creating an enormous and unnecessary burden, there would be no compensating benefit to mandating nationwide UNE pricing litigation. Existing UNE rates are based on a pricing methodology that the Commission already has determined is pro-competitive and fully compensates incumbents, which has been upheld by the Supreme Court as being consistent with the requirements of the Act. *See Verizon*, 535 U.S. 467. Any impact resulting from the new TELRIC rules being implemented over a reasonable time thus would be minor. And to the extent a state commission determines that immediate implementation of the rules is appropriate, it is free to independently initiate a new pricing proceeding. Moreover, as parties negotiate new interconnection agreements, they can seek state commission arbitration of rates based on the new standards. For these reasons, the Commission should not mandate immediate litigation of new UNE rates.

Nor should the Commission adopt a true-up mechanism. *See Notice* ¶ 151. A nationally-mandated true-up mechanism would create even greater uncertainty about the costs of local entry, which would have a substantial negative impact on both competitive entry and investment. Moreover, the period of uncertainty would likely last far longer than just a few months. Any Commission order changing the TELRIC rules will almost certainly be challenged in federal

court, and history teaches that such proceedings can take years to complete. Indeed, the Commission's existing TELRIC rules were finally upheld by the Supreme Court more than five years after they were initially adopted. A true-up mechanism will, therefore, most likely place the actual cost of competitive entry in limbo for many years, thus creating a long-term regulatory barrier to competitive entry.

CONCLUSION

For the foregoing reasons, the Commission should clarify the TELRIC rules only in a manner consistent with the discussion above.

Respectfully submitted,

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